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See pages 19, 20, 22, 107, 109 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 132

Lockport

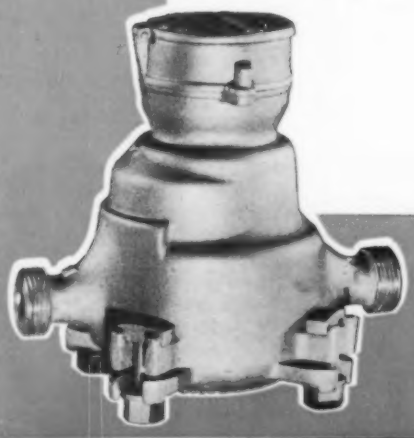
NEW YORK

The City of Lockport, the County Seat of Niagara County, owes its origin, development and supremacy to its geological and geographical locations and the quality of its environment. The city is situated at a point where a high ridge forms a geological obstruction in the course of the Erie Canal causing a drop of 235 feet between the Erie and Ontario levels. Occupying a Key Position in the expansive area of the Niagara Frontier, the advantages of Lockport's location and her environment are closely interlinked. Sweeping away from the city in all directions is an agricultural district whose productiveness has established for it an international fame, as "The $10,000,000 Fruit Belt."

Lockport is essentially a manufacturing city and is the home of numerous industries whose products command the highest respect and which have a nation-wide distribution.

Lockport's new Filtration Plant, installed at a cost of $550,000, supplies the city with a bounteous flow of crystalline, pure water and has had a most beneficial effect on the health and vitality of the community. From the Niagara River at a point near LaSalle, a distance of 13 miles, the water is piped through thirty-inch steel force mains to the Filtration Plant which has a capacity of 12,000,000 gallons per twenty-four hours.

With its system 100% metered, Lockport is another city where the accuracy and reliability of Pittsburgh Meters is relied upon to measure its water supply.



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During January we hope you will remember to mention THE AMERICAN CITY.

A Six-Point Program for 1938

A Year-End Message from the American Municipal Association

SIX major hurdles which will face municipal officials in the year just opening, all of which are extensions of business left unfinished in 1937, are outlined in a year-end statement by Clifford W. Ham, Executive Director of the American Municipal Association. Most of them involve the further strengthening of the relationships between local, state and Federal governments first created during the economic emergency.

The most acute problems which the American Municipal Association believes will demand the "direct, immediate and mutual attention" of cities, include:

1. *Financing Relief and Adjusting to the Removal of PWA as a Factor in Public-Works Programs.*—With the liquidation of PWA, following exhaustion of the $350,000,000 remaining in its appropriation, cities will have lost one source of employing their jobless. At the same time they must gear future public-works improvements back into a regular municipally financed program. The problem of relief does not let up. Continued Federal support, with its attendant question of distribution of the whole burden, its administration and standards, faces all levels of government. However, authorities express the opinion that constructive relief programs still depend upon a resurvey of public revenues, and an allocation of income made among levels of government on the basis of needs and responsibilities.

2. *Low-Cost Housing.* — Under the 1937 Wagner-Steagall Housing Act, cities in the 30 states that have housing authority enabling laws are empowered to go ahead with slum clearance and low-rent housing projects. Cities in the other 18 states must await enabling legislation by their legislatures. Those already legally prepared to proceed must find a way to finance projects with the aid of Federal loans and grants.

3. *Airports.*—Cities must find a way to support operation of their airports and to finance improvements on their airport facilities, now representing an investment of $300,000,000, if they are to accommodate enlarged air-traffic. A conference between the U. S. Bureau of Air Commerce and municipal representatives late in 1937 resulted in appointment of a committee by the Federal bureau to propose plans for future development of the aviation industry, and to allocate responsibility for these municipal projects which also benefit state and Federal governments.

4. *The House-Trailer.*—How stringent should local ordinances on house-trailers be made? In 1937 over 50 cities decided that the problem, though in its infant stage, could not be solved simply by prohibiting trailer parking and occupancy of camps within city limits. They passed laws to limit the staying-period, regulate sanitation, and in a few cases to arrange for police protection and other ordinary municipal services. With the construction of more trailers than housing units in 1937, the coming year may see the problem get out of control unless it receives the attention of municipal and state officials in the fields of health, relief, police, fire, taxation and recreation.

5. *Retirement Systems for Municipal Employees.* — Adoption of the Federal Social Security Act providing unemployment insurance and old age retirement benefits for industrial employees called attention to the inadequacy of retirement systems for most local employees, who number nearly 700,000. Pending decision as to the extension of the Social Security Act to include public employees, the several states can invoke their own power to establish comprehensive pension programs, into which the cities can enter.

6. *Training for Public Employees.*—With the inclusion of public employee-training under vocational education appropriations made in 1937 (the George-Deen Act) cities have an opportunity to arrange for the training of their employees on the job. Federal funds for the purpose are to be matched with state contributions, but cooperation of cities is necessary to plan the activities.

Many States Need Housing Authority Laws

URGING that all states make it possible for their municipalities to participate in Federal aid for low-rent housing, Administrator Nathan Straus of the United States Housing Authority issued on December 30 a statement from which the following excerpts are quoted:

"Section 9 of the United States Housing Act of 1937 provides that 'The Authority (USHA) may make loans to public housing agencies to assist the development, acquisition, or administration of low-rent housing or slum-clearance projects by such agencies.'

"Section 2, paragraph 11, of the Act defines a 'public housing agency' as 'any state, county, municipality, or other governmental entity or public body which is authorized to engage in the development or administration of low-rent housing or slum-clearance.'

'Such 'public housing agency' referred to in the Act is generally known as a Local Housing Authority.

"Local Housing Authorities are set up in pursuance to state housing laws commonly referred to as state enabling acts.

"Eighteen states have no housing laws under which local Housing Authorities may be set up. They are:

Arizona	Nevada
California	New Hampshire
Idaho	New Mexico
Iowa	Oklahoma
Kansas	South Dakota
Maine	Utah
Minnesota	Virginia
Mississippi	Washington
Missouri	Wyoming

"I today am issuing an appeal to all states which do not have housing acts to consider enactment of such laws at the earliest possible moment. I deem this of vital necessity because it will permit many communities desiring to participate in low-rent housing to set up proper local agencies and get their programs under way.

"I also wish to point out that of the thirty states which now have enabling legislation, five of the Acts are not satisfactory in their present form. They are Illinois, Massachusetts, Alabama, Montana and New Jersey.

LOCAL HOUSING AUTHORITIES INADEQUATELY FINANCED

"At the same time, I am appealing to communities which have local Housing Authorities and which have requested the United States Housing Authority to earmark funds for their program, to get behind the movement, stimulate interest, and seek to perfect financial arrangements by which they too may participate in the Government's program. Above all, cities must support their local authorities by appropriating funds to enable the authorities to get established on an efficient working basis.

"Of some 52 local Housing Authorities interviewed in detail during the past month by the staff of the United States Housing Authority, only 14 actually have received cash appropriations of any kind from their city governments. In many cases these appropriations are inadequate.

"Fifteen other local authorities have fairly definite commitments as to appropriations to come in the near future.

"This leaves 23 authorities, active enough to send representatives to Washington to negotiate for earmarking of funds for a program, who have no means of financial support of any kind.

"Obviously, it is impossible for local Housing Authorities to plan a large-scale housing project which will meet all the conditions of the Housing Act, without a regular headquarters, available funds, and a paid technical staff."

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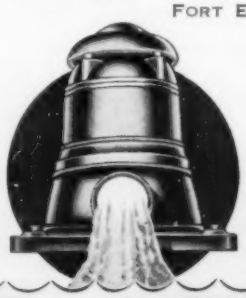

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Our Municipal Notebook

A Fire-Alarm System Is Boxes

THERE is no future for fire-alarm service unless there is an awakening on the part of the fire chief to the fact that it is boxes that make a fire-alarm system. Beautiful, elaborate and expensive headquarters equipment may be something to point to with pride, but it is the simple little box on the pole or pedestal that means most to the citizen. At the convention of the International Association of Fire Chiefs at Oklahoma City, I said that from a purely selfish standpoint every fire chief should insist on more boxes. Even though he may receive nearly all alarms by telephone, there is still the need, which only a good fire-alarm system will give him, of having readily available some means of communication between the fire ground and the various fire stations. The reason why there are not more boxes is the cost of them, and because no catastrophe has sufficiently proved the need.

Many American cities are depending entirely upon the service rendered by the commercial telephone, and because other cities are receiving from 50 to 90 per cent of their alarms by telephone, and receiving them in a perfectly satisfactory manner, there has been little stress laid upon the need of a municipal fire-alarm service through a municipally operated system.

There are several features which the fire-alarm system of the future will have, such as the dispatching of fire apparatus by voice, as with loudspeakers, and the use of radio to keep the chief officer in touch with headquarters. Both police and fire service will be under one head, with operators trained to both services, and combined use of the same cables, if not, indeed, of the same wires and boxes. There is no more reason why this service must be operated by the fire department than that the water must head up there.

Fire departments are not merely organizations to extinguish fires. Chiefs realize that in apparatus and man-power they must look ahead to the possible conflagration, and to every great emergency. The value of municipally-owned communications systems in these plans has not been clearly visualized.

Community protection requires a municipally controlled fire-alarm system.

The greater the values involved, the more necessary the adequacy of the system.

This system must be kept simple, yet must include modern improvements.

It can be most economically operated when combined with police signaling.

It will be adequate in proportion to the number of its street stations. This means that fire-alarm systems must have boxes and more boxes—every 300 feet in high-value districts, 800 feet in residential districts, 1,200 feet in outlying districts—the public must be taught to use them.

Without boxes easily seen and reached, there is no real fire-alarm service. If the chief of the fire department does not urge the continued installation of boxes, there will be no municipal fire-alarm telegraph service.

A. C. HUTSON,
National Board of Fire Underwriters.

Better-Looking Buses

WHILE the city may not always have a hand in the selection of the common-carrier vehicles on its streets, it may reject those types which do not add to the felicity of the town, and it may indicate its preferences. Coach manufacturers are developing a wider and better selection of coaches to decorate the streets as well as to attract mass travel. The accompanying design by Gar Wood Industries, Inc., built all of a piece of welded tubing closed with Nicralumin and safety glass, is suggestive of the beauty as well as the comfort and efficiency that can be packed into a bus. The flat appearance of a city has already been largely determined by the buildings; which are the expressions of myriad individuals seeking homes and financial success. But the *tone* of a city may be improved by the municipal government through skillfully controlled traffic, by suitable street lighting, and by the local transportation system permitted and protected by franchise. Increased attention is being given to this last-named factor.

Mayor Carlson Retires

JAMESTOWN, N. Y., has been cited as having the outstanding municipally-owned water and light plant in New York State and one of the most efficient in the country. To a considerable extent its founding and its record are the work of Mayor Samuel A. Carlson, who, after 40 years in the service of the city, including 25 years as Mayor, retired December 21 at the close of a meeting of the Board of Public Utilities at which the following resolution was adopted:

"Four decades ago Samuel A. Carlson announced his belief in the feasibility of this city owning its water and electric systems. Three decades ago the commencement of his first term as Mayor afforded him an opportunity to further stimulate public opinion in support of the municipal systems and to select the successive and successful administrators of these community enterprises.

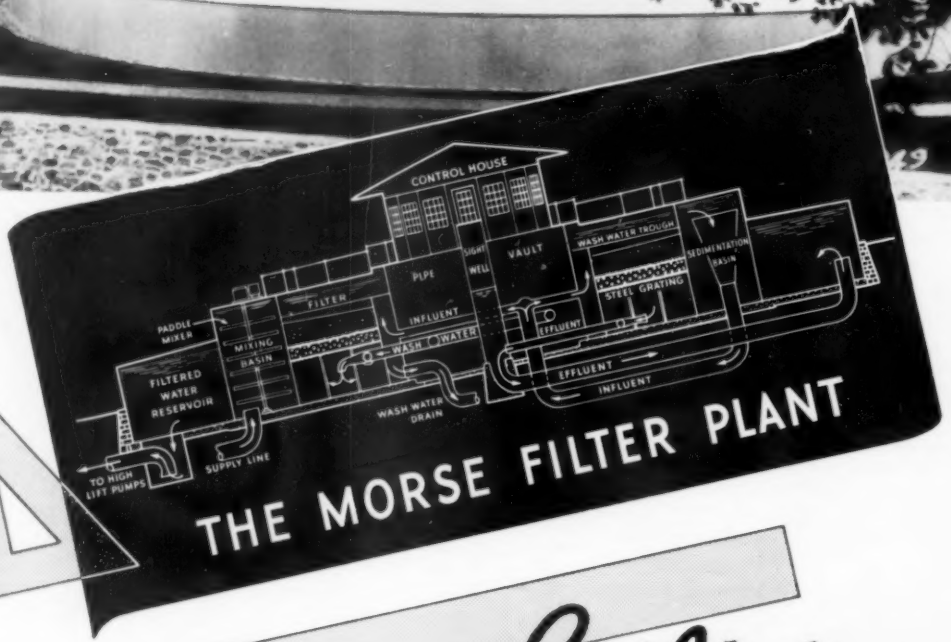
"His 30 years of official leadership approaches an end, and with it his period of service as a member of this Board by virtue of his office.

"It is therefore fitting that the Board of Public Utilities place on its official minutes this commendation of the service of Samuel A. Carlson in aiding in the establishment and in promoting the sound conduct of the municipal water and electric systems.

"In a day of doubt, he had faith; in an hour of blindness, he had vision; what men said could not be done, has been done. He provided by his leadership that solidarity of public opinion which afforded an opportunity for the administrators of his selection to work out the problems of municipal ownership upon a business, rather than a political, basis.

"To bring to a community the thought that there are men within it with enough sagacity and integrity to conduct municipal business as they seek to administer their private enterprises, is a lesson in public service having implications of far more than local importance."

A GAR WOOD COACH WITH BODY AND CHASSIS INTEGRAL AND THE WORKS MOUNTED TO THE WELDED TUBULAR FRAME



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From an operating standpoint, also, the Morse Filter Plant is modern. All parts are planned to reduce the labor for maintenance and cleaning to a new minimum. Loss of head through plant is small, thus making for low pumping costs. We shall be glad to send bulletin giving complete information. Write our nearest office.

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Water Supply and Purification

Chlorine and Ammonia in Water Purification

THE first suggestion for the use of a combination of chlorine and ammonia in water treatment was made in 1904. The idea did not receive much consideration until 1930, when five communities were using the process. Since then, the popularity of the ammonia-chlorine process has spread, until now nearly 1,000 communities are using it as the means of solving their taste and odor problems.

A. E. Griffin, of the Research Laboratory of Wallace & Tiernan Co., Inc., in a paper read before the Public Health Engineering Section of the American Public Health Association, at its sixty-fifth annual meeting, pointed out that there is little doubt that the ammonia-chlorine process has proved its worth, and yet in the light of present knowledge it appears that many of the installations now considered as working well could be improved by a thorough check on all the factors involved, and those few now considered to be yielding little or no benefit could be put on an efficient basis. Also, he feels that the adoption of the process by many other plants would materially lessen the worries due to bacterial aftergrowths, red water, pipe-line capacity loss, iron bacteria, tuberculation, and tastes and odors.

Mr. Griffin presents the following eight conclusions from his study of ammonia-chlorine treatment which it would be well for water-works operators to remember:

1. Ammonia may be applied either before or after the chlorine, depending upon conditions.

2. The ratio of ammonia to chlorine can be varied over a wide range.

3. Chloramines may be reformed by an additional dose of chlorine to a water which has already supported a chloramine residual. This depends upon the amount of ammonia left in the water at the desired point of secondary chlorination.

4. The free ammonia naturally present in the raw water may greatly influence the proper dose of ammonia necessary for the formation of chloramines.

5. Close attention to the amount of free ammonia naturally present may avoid operating difficulties such as tastes, etc., and other periodic irregularities in the quality of the delivered water.

6. The removal of ammonia by filters depends on the filter. The per cent removal may range from 0 to nearly 100 per cent.

7. Chloramines are generally very effective in controlling algal growths. However, resistant growths not easily controlled by chloramines may be held in check by a carefully controlled continuous feed of copper sulphate applied ahead of the ammonia and chlorine point of application. The success of this method depends upon the close adjustment of the copper sulphate feed to both the ammonia and chlorine feeds.

8. Proper attention to detail including the determination of free ammonia will greatly improve the efficiency of an already efficient water-works tool.

A 36-MGD Water Works for an Industrial Plant

THE Carnegie-Illinois Steel Corporation recently awarded a contract to the Rust Engineering Co., of Pittsburgh, Pa., for a complete water-works system for the new Irvin Works between Dravosburg and Clairton, Pa., calling for an expenditure of approximately $800,000. This is one of the largest private water works ever built purely for industrial use and will have an initial capacity of 36 mgd, with provision for an ultimate capacity of twice that amount. After the installation of future equipment to raise the plant to its final capacity, the water supply would be sufficient to meet the needs of a city with a population of 750,000.

Water will be taken from the Monongahela River through a reinforced concrete open intake 27 feet wide and 9 feet deep, with trash-gates at the entrance to remove heavy refuse, and traveling screens to pick up light refuse such as leaves. A primary lime treatment system will be provided to neutralize the acid content of the water. The rate of feeding the lime will be automatically controlled in accordance with the change in the volume of water pumped and changes in the acid content.

The pump room is arranged for immediate installation of three pumps with a capacity of 8,500 gpm, with space provided for the installation of three more pumps. These pumps will be electrically driven by 1,250-hp a-c motors. A single-stage centrifugal pump will be mounted on each end of the motor shafts. These will be operated in series, so that the water will be discharged from the first pump at a pressure of 150 pounds per square inch and will be raised to a pressure of 200 pounds per square inch by the second pump.

After passing through the pumps, the water will go through automatic strainers to remove all foreign matter 0.024-inch in diameter or larger. The water will be elevated 450 feet through a 42-inch line to a steel reservoir with a capacity of 3,750,000 gallons, located on a hill above the plant.

Part of the water will be delivered directly from the reservoir in a raw state for de-scaling and cooling. Water requiring further refining will run through a Morse all-steel filtration plant using lime coagulation equipment and gravity sand filters.

WATER is truly a commodity like grain, being an annual crop related to the rainfall and depending for its utilization upon storage provided within the area which catches and produces it.

MALCOLM PIRNIE,
Consulting Engineer, New York City.

BACKFILLING A PIPE-LINE TRENCH AT HOLLIDAY, UTAH, A SUBURB OF SALT LAKE CITY

The Caterpillar Twenty-Two tractor with LaPlant-Choate bulldozer covered 1,000 feet of pipe in a trench 4 feet deep and 2 feet wide in one day, using one gallon of fuel per hour. The outfit is owned by Salt Lake City

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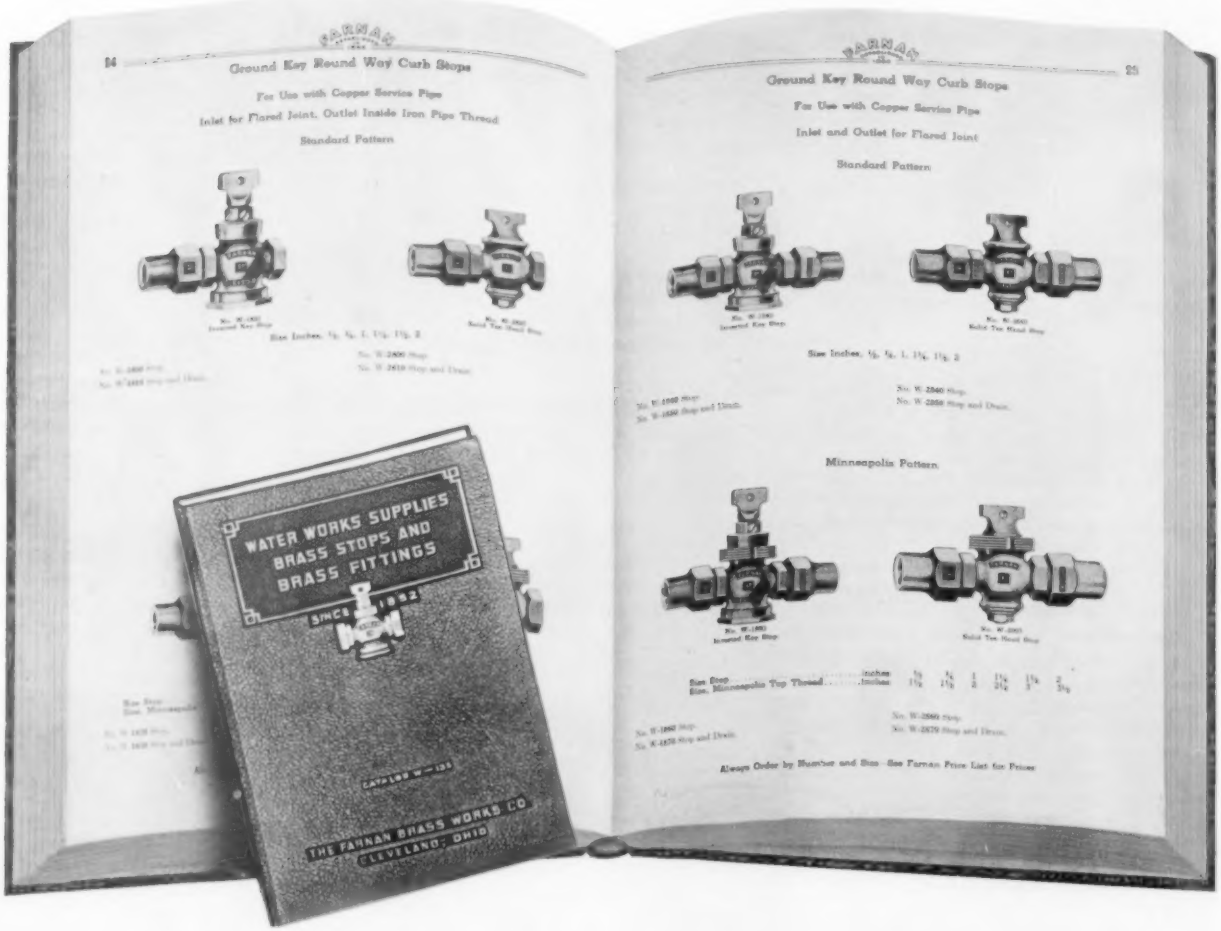
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Ground Key Round Way Curb Stops
For Use with Copper Service Pipe
Inlet for Flared Joint, Outlet Inside Iron Pipe Thread
Standard Pattern
25
Ground Key Round Way Curb Stops
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Always Order by Number and Size. See Farnan Price List for Prices
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THE FARNAN BRASS WORKS CO.
CLEVELAND ***Established 1852*** **OHIO**

Municipal Airports

Federal Aid for Airports

Whereas, there are 758 municipal airports now operating in the United States; and

Whereas, these airports constitute an important and vitally necessary unit of the aerial transportation system and of the aviation industry generally, rendering a public service of great benefit to the entire nation; and

Whereas, the municipal airports are indispensable to the United States as a facility of national defense; and

Whereas, with the exception of such funds as have been made available under the various emergency relief programs, the burden of the cost of acquisition, construction, development and maintenance of these airports has fallen almost in its entirety upon the municipalities, notwithstanding the national and extra-municipal scope of the service rendered to the public and the aviation industry by the said airports; and

Whereas, large sums have been, are now, and will be required in the future to keep the development of facilities of these said airports abreast of the progress and expansion made in the manufacturing and operating divisions of the aviation industry, and to insure the safe and efficient operation of all types of aircraft; and

Whereas, adequate funds with which to prosecute necessary and desirable improvement and expansion programs are not readily available from their own revenues to most of the municipalities operating municipal airports; and

Whereas, the restriction of development of ground facilities, resulting from the lack of such funds, involves the safety of air transportation and threatens seriously to impede and hinder the continued advancement of aviation and of the service rendered the public by aviation; and

Whereas, the need of modern, improved ground facilities at airports is a continuing one, and one which therefore demands a permanent program of financing in order satisfactorily to meet conditions as they arise; and

Whereas, the Federal Government, recognizing the importance to the nation of its transportation systems, has, as a matter of public policy, rendered financial and other assistance in the construction and development of the railroads, in the construction and development of marine shipping, in the construction and development of harbors and inland waterways, and in the construction and development of a national highway system; and

Whereas, the adoption of a policy of Federal financial assistance and cooperation in the development of the public airports of the nation would not therefore mark any departure from established public policy, inasmuch as safe and adequate airports are absolutely essential to the satisfactory functioning of aerial transportation;

Now, therefore, be it resolved, that the United States Conference of Mayors petition the Congress of the United States to enact such legislation as is necessary and competent to provide for and authorize a permanent program of Federal financial cooperation in the construction, improvement, development and expansion of publicly owned airports, to the end that adequate funds will be available, when needed, to carry on and complete such projects of construction, improvement, development and expansion as are necessary to meet the requirements of public safety, public convenience and the proper functioning of the aviation industry in its service to the people of the United States.

—Resolution submitted by Hon. Frank L. Shaw, Mayor of Los Angeles, and adopted by the United States Conference of Mayors.

Ground Power for Airports

THE public thinks of the aviation industry mainly in terms of giant airliners, a network of air routes, flight schedules, passenger-miles flown, and the local municipal airport. Little thought is given to the extensive and well-organized ground facilities without which the maintenance or expansion of air operations would be impossible.

Mobile power in the form of tractors, both wheel and crawler, has become indispensable to the efficient conduct of ground operations at most airports. One of the principal duties of airport tractors is the towing and placing of planes around the hangars. With engines warmed up and running, and with sufficient space, the planes can be taxied into position under their own power; but when it comes to moving them in restricted quarters or while the engines are cold, the tractors do the work.

The tractors are also ideal for moving heavy equipment, such as motors on motor stands or trailers, and for pulling miscellaneous loads of materials on trailers.

The versatility of the airport tractor is further demonstrated in the many duties it performs in conjunction with tractor-operated equipment of various kinds. At airports with cinder or dirt runways, the tractors pull graders, maintainers, and rollers to keep the runways in first-rate condition, and haul extra cinders or earth as needed to fill in low spots. On landing fields which are kept free of vegetation, the tractor with a drag quickly covers the area, obliterating wheel tracks, puddle holes, and bumps, and keeping a broad, smooth surface for the wheels of the planes.

Regular equipment for tractors at many airports includes power-operated mowers with which the grass-grown areas of the landing field are kept mown short and free of fast-growing weeds. With a tractor and a 7-foot power mower, one man can cut from 20 to 30 acres a day. If desired, a trailing mower can be added to cut another 5 to 7 feet, thus doubling the acreage covered per day. These same tractors provide power for construction, including excavation and other dirt-moving work requiring plows or scrapers. The removal of snow from walks, runways and landing fields is a very important function of airport tractors in sections where the snowfall is normally heavy or where sudden storms with high drifts sometimes tie up operations temporarily.

—By Courtesy of *International Power*.

MAKING A DRAINAGE DITCH AT THE TIMARU MUNICIPAL AIRPORT, SOUTH CANTERBURY TERRITORY, NEW ZEALAND

A ditcher pulled by an RD8 tractor through block and tackle anchored to a 12-yard Carryall scraper. The ditch is 30 x 27 inches and 12 inches across the bottom, and was made in one trip. The excavated material is thrown clear of the ditch and later picked up with the scraper

FIGHT WINTER with *Perfect* BLADE CONTROL

USE BLACKHAWK'S NEW *Remote* CONTROL

CUT the heart right out of Ol' Man Winter by giving your snow fighters more accurate, dependable control over blades. Blackhawk's "Power-Packer" on your plows will do the trick — enabling your crews to clear the highways better, faster, and with greater economy. Its compact modern design, positive control, greater safety, and ease-of-maintenance make it the most efficient hydraulic remote control unit ever developed.

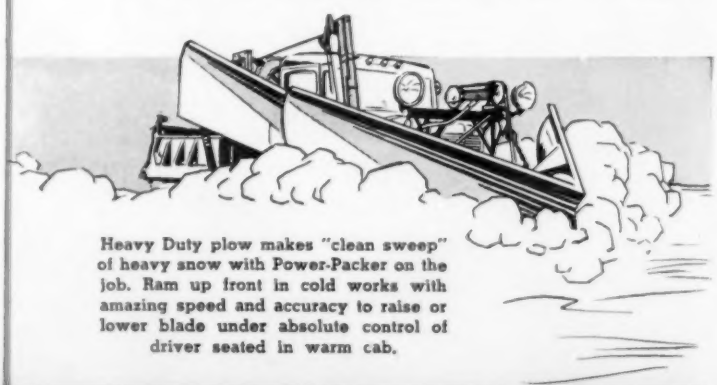
Specify "Power-Packer" on new plows—modernize present plows at low cost by installing Power-Packer "change-overs." Write us for Power-Packer details — giving make of your plows, make of trucks, number in operation.

BLACKHAWK MFG. CO., Dept. AC-138, *Milwaukee, Wis.*

NEW P-60 POWER-PACKER

This compact remote control unit operates on the same principle as the famous Blackhawk Hydraulic Jacks.

PAT. PEND.



Heavy Duty plow makes "clean sweep" of heavy snow with Power-Packer on the job. Ram up front in cold works with amazing speed and accuracy to raise or lower blade under absolute control of driver seated in warm cab.

BLACKHAWK *Hydraulic* CONTROLS

City Street and Road Problems

Stop the Proposed Diversion of Hayden-Cartwright Road Funds

By GEO. R. DEMPSTER
Knoxville, Tenn.

THE proposal which has been made to divert Federal highway funds appropriated by the Hayden-Cartwright Act of 1936 has met with disapproval all over the United States. There has been less criticism against Federal appropriation for good roads than any other activity of the Government. It is extremely untimely now after the Federal Government has penalized various states for diverting gas funds, for the Government itself to propose that this be done on a major scale.

The tax-paying public are prone to think that appropriations made from Federal funds for the building of highways are just another added burden in their tax bills. They overlook the fact, however, that $107,000,000 more has been collected from motor cars, oil, gas, etc., than has been appropriated by the Federal Government from 1917 to 1936. This puts the Federal Aid movement for highways in a class by itself and, therefore, if there are any funds which should be earmarked, the revenue from motor cars and accessories should head the list. By the accumulation of various taxes upon motor vehicles, the United States Government has collected since 1917 to February, 1937, $2,393,710,119. There has been a minimum of protest from the motoring public, because they had a right to believe that this money would always be spent in making the highways over which they travel much better and safer, thereby saving them money on gas, oil, upkeep, etc.

The ever-mounting number of accidents upon our highways, which took a toll of 38,000 lives last year, should indelibly impress upon the minds of the lawmakers that additional safeguards are necessary to protect both the motorists and the pedestrians. It is thought that the 1937 toll will be approximately 40,000 deaths—and the end is not yet.

Our factories have been running overtime in producing motor vehicles, and whereas there were only 28,000,000 upon the highways in 1936, it has been conservatively estimated that within two years this number would be increased to 32,000,000 vehicles. There is only one answer to such a rapid increase and that is wider, straighter and safer roadways, with separation of the lanes of traffic, and of grades at intersections.

Many of the states have predicated their taxation during 1938 on the theory that the United States Government would make available certain funds to supplement those raised by the states. Now, if at this late date the Government should change its policy, this would materially alter the plans of the 48 states to such an extent that special sessions of their legislatures might be necessary to meet the situation. Perhaps no other line of endeavor gives more man-hours of work than highway construction. Perhaps the leaf-raking projects of some of the alphabetical organizations might look better on paper, but after the show is over they would not have the assets for the right side of the ledger as is the case when money is spent upon highways.

The farmer is the backbone of America's prosperity and he has certain rights in this controversy and must be given the proper highway to transport his products to market. He must be considered, as must his children who now travel long distances to school via the motor-bus system. During the last few years the Government has realized and recognized this responsibility to the six million farm families which otherwise would market their crops only over roads with mud to the wagon hubs. It is possible to eliminate a million miles of mud roads in America and thereby meet the transportation problem, which is without a doubt the most difficult one which the farmer encounters.

In the case of national defense nothing would be more important than a thoroughly adequate system of highways leading into every village and hamlet in America, in order that our forces and supplies might be immediately mobilized at points of attack. Aside from the farmer, practically every known industry is aided to some extent by the construction of roads. If the money ordinarily appropriated for roads should be spent otherwise and no roads completed, there would be a vigorous protest from American taxpayers, and their wishes must be considered. The increase in trucks and trailers has further added to the burden of those who have to do with the construction of roads and the maintenance of safety rules thereon.

There is not a municipality in the United States that would have its officials raise a protest against any attempts to curtail the work now under way. About 90 cents of every dollar expended for streets and highway improvements ultimately reaches the wage-earner.[1] This is certainly a most inopportune time to add to the so-called recession by stopping highway improvements, when we know that each dollar spent adds to the safeguards we can throw around those who drive and those who walk. A recent poll of Congress indicates an overwhelming majority in favor of continuing the Federal highway movement, thereby keeping America in the forefront of all nations and increasing the value of her agricultural products alone enough to pay for the system many times over.

Tunnel Proposed for East River Drive

FOR some time New York City has planned improvement of the East River Drive as a through highway. A plan has now been brought forward by the First Avenue Association for a tunnel in lieu of carrying the highway along the river front or at grade through the high-grade residential community between 54th and 60th Streets.

The cost will be $2,246,000.

MAINTAINING THE GRAVEL SURFACE OF PACIFIC STREET ON THE NORTH SHORE OF LAKE UNION, SEATTLE, WASH., WITH A CATERPILLAR NO. 11 DIESEL AUTO PATROL

5 LITTLEFORD STARS

See Them At Booth C-7

★★★★★ROAD SHOW

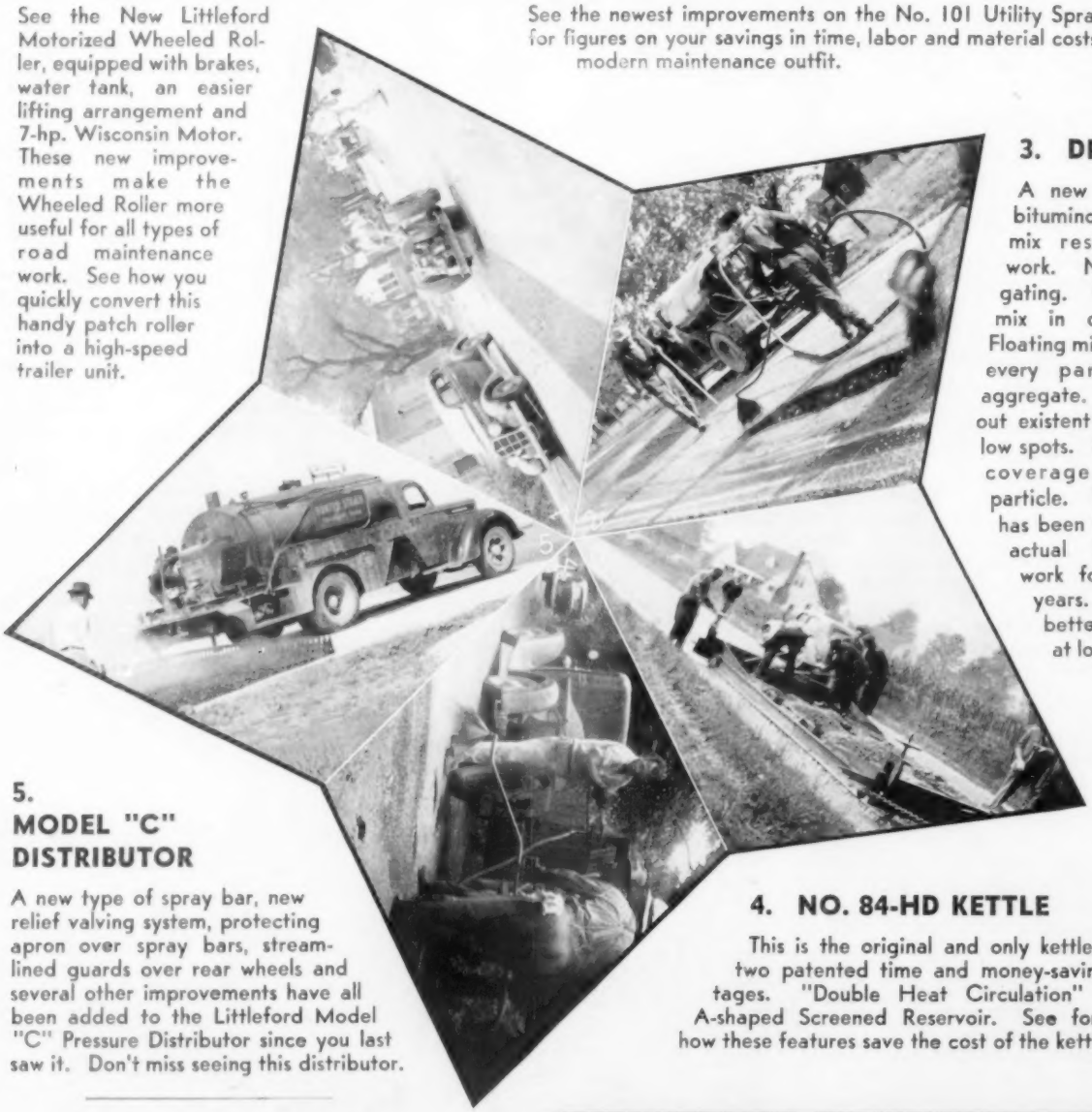
CLEVELAND, OHIO....JAN. 17-21

1. WHEELED ROLLER

See the New Littleford Motorized Wheeled Roller, equipped with brakes, water tank, an easier lifting arrangement and 7-hp. Wisconsin Motor. These new improvements make the Wheeled Roller more useful for all types of road maintenance work. See how you quickly convert this handy patch roller into a high-speed trailer unit.

2. NO. 101 UTILITY SPRAYER

See the newest improvements on the No. 101 Utility Sprayer. Ask for figures on your savings in time, labor and material costs with this modern maintenance outfit.



3. DRAG

A new idea for bituminous road-mix resurfacing work. Non-segregating. Complete mix in one pass. Floating mixers reach every particle of aggregate. Smooths out existent high and low spots. Complete coverage of every particle. This drag has been tested on actual highway work for several years. It builds better roads at lower costs.

5. MODEL "C" DISTRIBUTOR

A new type of spray bar, new relief valving system, protecting apron over spray bars, streamlined guards over rear wheels and several other improvements have all been added to the Littleford Model "C" Pressure Distributor since you last saw it. Don't miss seeing this distributor.

4. NO. 84-HD KETTLE

This is the original and only kettle with the two patented time and money-saving advantages. "Double Heat Circulation" and the A-shaped Screened Reservoir. See for yourself how these features save the cost of the kettle quickly.

Other Features to See

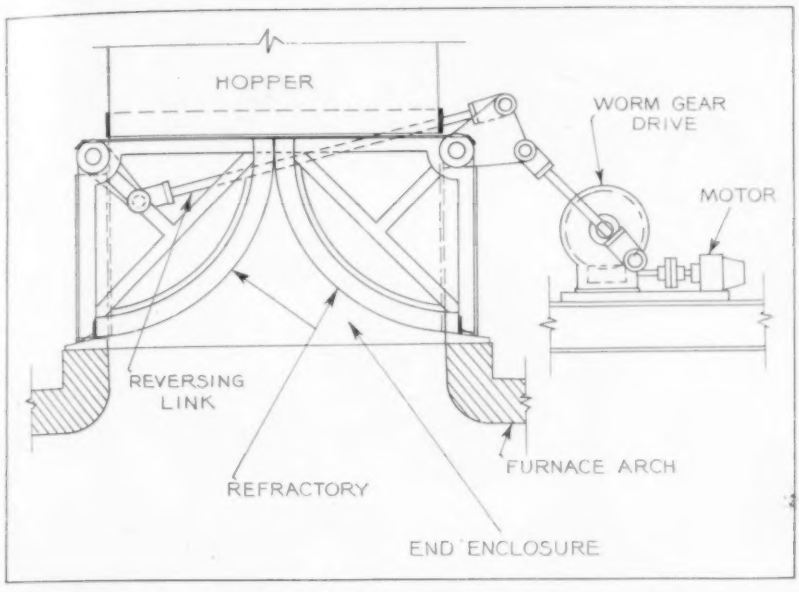
There will be a generous assortment of Littleford oil burners, concrete heaters, traffic line markers, and other smaller equipment on display in the Littleford Booth, C-7. Don't miss it. See the pictorial displays of Littleford equipment in action. New literature and data on equipment and methods free for your request.

BLACK TOP ROAD MAINTENANCE EQUIPMENT — LB — SINCE - 1900

LITTLEFORD

LITTLEFORD BROS.
500 EAST PEARL STREET
CINCINNATI, OHIO

Municipal Refuse Disposal



OPERATION OF THE ELECTRICALLY DRIVEN CHARGING GATES IN THE 56TH STREET INCINERATOR, NEW YORK

New Charging Gates for Refuse Furnaces

A NEW type of electrically operated charging gate for refuse incinerators has been placed in service in the incinerator at 56th Street and 12th Avenue, New York City. This new gate has many improvements over the more common pneumatic operation of gates, principally in low-cost construction and maintenance.

Examination of the sketch will show that the seat and other castings which ordinarily come within range of the radiant heat of the furnace, and which usually contribute to high maintenance costs, have been eliminated. The gates are easily adjustable and convenient for the operator, and because of their light weight are easily removed for repair and replacement.

Where electric motors are used for operation, the power costs are lower than for other gates used for this service in New York City. Push-button control stations are within easy reach of the fireman and dump-floor laborers who may share the operation of the gates.

The refractory section is replaceable by merely rotating the gates away from the hopper or chute. In this position the removal of the damaged block and its replacement with a new block is accomplished without the removal of the gate itself.

The gate is particularly adaptable to hand operation because of less weight and friction than the more generally used rolling or sliding types.

THE AMERICAN CITY is indebted to Francis C. Holbrook, Mechanical Engineer, Department of Sanitation, New York City, for this text and illustration.

Burning More Refuse

THE incinerator furnaces for New York City are usually designed on the basis of burning refuse at from 65 to 85 pounds per square foot of grate surface per hour. The furnaces, on this basis, at the present time are overloaded from 20 to 40 per cent. Joseph C. Zengerle, Chief Engineer, Final Disposition, Department of Sanitation, believed that shredding the material would make it possible to burn more material at a faster rate and provide considerable gases of high temperature for use in waste heat boilers. A Mitts & Merrill hogger was borrowed and set up in the 215th Street plant in the borough of Manhattan. This small machine is driven by a 50-hp motor at 1,800 rpm.

One of the furnaces of the 215th Street plant was altered so that the material could be partially blown and partially dropped by gravity into the cell. Each furnace consists of four cells. The test was performed to determine how much material could be burned per square foot of surface per hour, and to find out the character of the residue of the burned shredded material. It was found possible to burn about 170 pounds per square foot of grate surface per hour, or double the designed burning rate.

As each furnace has a capacity of 150 tons of refuse per 24 hours, the test showed that each furnace could burn at least 300 tons per 24 hours. The Engineering Division of the Department of Sanitation has since been working on the design of a mechanically operated incinerator the basis of which is a burning rate of 250 pounds per square foot of grate surface per hour. Hoggers are included and it is proposed to use the heat generated to furnish electric power.

There is no doubt that the design of future incinerators should include hoggers, and, while it is true that the cost of hogging a ton of refuse may be somewhat of an expense, this is more than compensated for by the utilization of the heat obtained from the material for the generation of steam and the creation of electric power. The cost of construction of the existing New York City incinerators ranged from approximately $1,000 to $2,500 per ton of daily capacity. If incinerators that are capable of burning garbage and rubbish at high rates of combustion through shredding the material will make possible the construction of these incinerators at a cost of $500 per ton of rated capacity, engineers will have made a long stride forward.

—From a paper presented by Mr. Zengerle before the Sanitation Group, Materials Handling Division, A.S.M.E.

A CATERPILLAR KEEPS A REFUSE DUMP IN THE NATION'S CAPITOL TRIM AND LEVEL

Community Profit and Loss

A large fire loss almost invariably reflects a delayed alarm. . . . Fire out of control destroys property and menaces or destroys human life until extinguished. . . . Remember—your great investment in fire fighting equipment and organization is valueless until the **alarm is given!**

Time Lost in announcing fire is reflected in scenes as above . . . and the community **Loses**. . .

Time Saved while fires are in their incipiency is reflected in small fire losses and greater security . . . and the community **Profits.**

Gamewell Fire Alarm Boxes properly distributed relative to values and fire hazards provide the swiftest and most reliable method of giving alarms. . . . They protect property, business, and the home by saving **Time.**

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

Three-fold Fire Alarm Box

Not more than 500 feet to the nearest box in closely-built residential districts . . . convenient to every group of buildings, manufacturing establishments, and institutions in sparsely-built districts . . . in congested high-value districts — *"A Box a Block"* — with special attention to Life Hazards . . . a safe rule to follow.

Public Safety

City Motorcycle Safety Squad

By CHIEF JOHN L. MALONEY
Police Department, Springfield, Mass.

AN alarming total of fatal accidents during 1936 caused me to set up a special motorcycle detail whose duties were solely accident prevention, including general instruction to motorists and pedestrians. Eight picked men, all experienced motorcycle riders and traffic officers, were instructed to patrol the sections of the city where most of our accidents occurred.

These police use their own judgment as to whether to make an arrest or deliver a "curbstone lecture." Fatalities this year are seven below those of last year.

A drive against motorists who disobeyed boulevard and stop-street signs brought 87 into court compared with 54 during 1936. As a result, it is now possible for a driver familiar with the city to proceed either up or downtown or crosstown on boulevard streets without fear of some other car shooting out of a STOP street in front of his machine.

The number of speeding complaints put before the court by the special detail is slightly less than in 1936. It was hoped when the motorcycle detail was put into effect last June to have it function on accident prevention rather than on prosecution. I have found through years of experience that each accident has a specific cause—generally due to carelessness on the part of one driver or the other. The job of the new detail was to counteract his carelessness with instruction.

OFFICER ARNOLD LETENDRE OF THE SPRINGFIELD, MASS., HIGHWAY SQUAD ON HIS INDIAN

The eight men detailed to the squad work from 8:00 in the morning to 12:00 at night, four men to the two regular shifts working these hours. The riders are assigned to certain sections of the city, and danger-spots of the section are pointed out to the rider when he takes up his post.

A motorcycle is the ideal machine for this type of work, inasmuch as it is easily handled by experienced riders in heavy traffic and it is possible to cover much more territory than with a police cruiser assigned to such patrol. The economy of operation of a motorcycle as compared with a cruising car should also be considered when such a detail is being established.

Rates for Parking Meters

WE are operating parking meters at present in some sections of the city on the basis of 1 cent for 12 minutes, 5 cents for 60 minutes, and we find that this 1 cent rate for short stops is very popular.

F. A. BRODHEAD,
Chief Inspector, Bureau of Traffic Inspection, Atlantic City, N. J.

Why Omaha Likes Parking Meters

To the Editor of THE AMERICAN CITY:

On April 19, Omaha installed 750 Park-O-Graph parking meters, and it is now installing 250 more. The original installation cost $42,427, and revenues to the end of the year have amounted to $37,950, or within $5,000 of the purchase price. The attitude of the merchants and of the general parking public is very favorable.

The meters permit the customer who visits the retail district in a car to drive to the very door of his or her favorite establishment. No longer do these motorists cruise around the block from once to a dozen times to get close to the store they want to trade in.

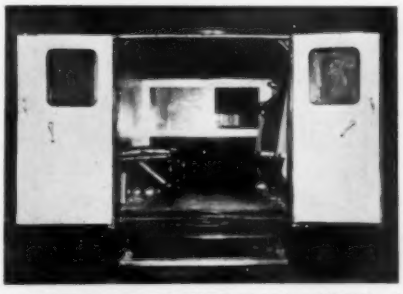
This is convenience that was never experienced before. I know, because I have been a retailer all my business life. I was encouraged, and I might say prompted, to fight for the meter idea because of my business experience.

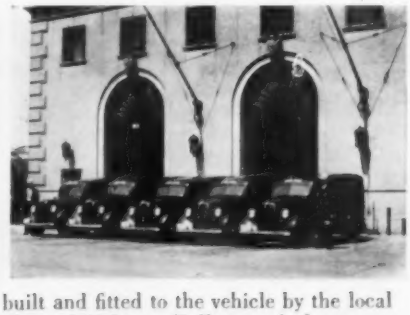
Meters have been a marvelous help to the country customer; to the farmer who comes to Omaha perhaps once a week or once a month to shop. Now they don't have to walk a long distance between the place where their car is parked and their retailer. No longer does the heavy traffic of the congested district frighten them, and no longer does their cruising car add to the congestion. I have received numerous letters from out-of-town folk—people I have never known and perhaps never will know, commending our city on the adoption of the meter idea. I know it is sound. Anything that is mutually beneficial to retailer and customer is meritorious, in my opinion.

Solve your down-town parking problems with parking meters.

RICHARD W. JEPSEN,
Commissioner of Police and Public Safety, Omaha, Nebr.

Combined Tank and Field Hospital





CHIEF OF POLICE RAY ALLEN of Toledo, Ohio, reports that the five combination units shown at the right bring the Department's Ford fleet to 53. The folding seat makes the vehicle useful as a patrol wagon. Opposite is a stretcher built and fitted to the vehicle by the local Shop of Siebert. Bullet-proof glass separates the driver from the rear section. The car is also equipped with short-wave radio receiver, sawed-off shotguns and a Model E Federal siren.

HOW ABOUT *Your* HAMMER EQUIPMENT?

Triple "E" Performance . . . Economy—Efficiency—Effectiveness

● When you have a power hammer job, reach for a BARCO and watch the savings pay for the investment. It is a source of satisfaction to know that your equipment is modern and dependable.

Indispensable in road work for drilling, driving, back-fill tamping, breaking or digging—any or all in a day's work whether winter or summer. Satisfaction guaranteed.

Have you received your copy of the latest "BARCO HAMMER HAPPENINGS"?—if not, ask for one.

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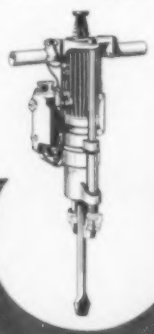


BARCO *portable* GASOLINE HAMMER

During January we hope you will remember to mention THE AMERICAN CITY.

JANUARY, 1938

Vol. LIII, No. 1

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Divided Highway Enters Tucson, Arizona

State Highway Department Solves Complicated Problems of Three Right-Angle Turns

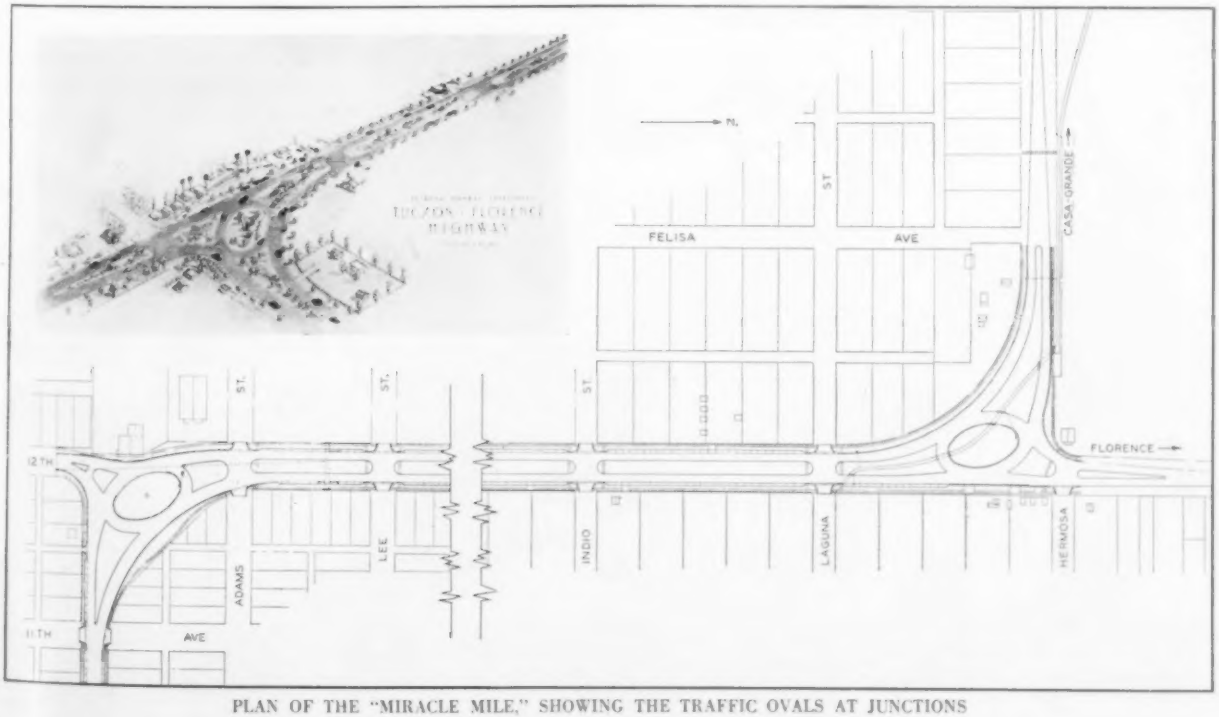
By E. V. MILLER
Engineer of Plans, Arizona Highway Department

ARIZONA'S first divided highway is now open to traffic. This project, beginning at the junction of U. S. 80, 89 and State Route 84, extends two miles south into the city of Tucson.

One of the interesting features of this highway is the treatment of the three right-angle turns within the project. One turn inside the city, at the intersection of Drachman and Stone Avenues, was treated as a normal street intersection except that the curb radius was increased on one corner to 115 feet to maintain faster traffic flow on the main route. No separation was attempted here. The other two right-angle turns were "T" intersections and, being at either end of the divided roadway, were treated as modified traffic circles.

The Traffic Circles

The traffic circle in its true sense was not used, but rather ovals of 200 feet on their long axis and 120 feet across were used. This allows a much higher speed for the major traffic, and subjects only the minor traffic flow to the rotary principle. In order that traffic might fuse into and



PLAN OF THE "MIRACLE MILE," SHOWING THE TRAFFIC OVALS AT JUNCTIONS

CROSS-SECTION OF THE NEW DIVIDED HIGHWAY ENTERING TUCSON, ARIZ.

out of the main stream, the roadways around the ovals were widened one full lane width. The transitions from the three to two lane widths, or vice versa, were carried out about 100 feet beyond the ovals on each intersecting roadway. This allows traffic to maneuver for position into the main stream without too much friction. Modified super-elevations were used on the curved roadways to accommodate moderate speeds of inter-city and urban traffic around them.

Neutral Zone and Indented Parking Strips

Between the two traffic ovals the project consists of two 22-foot asphaltic roadways separated by a 38-foot neutral zone. Flat ogee type concrete curbs were used around the center parkways, and standard 6-inch concrete curb with 8-foot integral gutter for parking on the property side. The contrasting colors of asphalt and concrete will tend to provide a permanent division between the active trafficways and parking strips.

The indented concrete parking strip 8 feet wide allows flat-to-curb parking in the usual manner. At the four corners of the side streets 7½-inch curb returns have a radius of 19 feet and a 2-foot gutter carries around to the end of the parking strip where an ogee transition connects the two. Surface drainage is carried in a straight line 2 feet off the edge of the asphalt trafficways.

Drainage and Landscaping

Since there are no storm sewers, the drainage was passed under, through ordinary concrete box culverts or pipes. The surface drainage was dropped into catch-basins in the gutter line and carried to the nearest culvert. One rather complicated drainage situation at the north circle was solved by carrying an open ditch down the center parkway through the traffic oval and then parallel to the right-of-way to its outfall. This ditch was riprapped with broken concrete from the old pavement.

Landscaping will be of an informal nature but unique, in that native desert growth, such as palo verde (Parkinsonia), greasewood, mesquite, and various cacti, will be used. A transcontinental telephone line was moved one block east in order that beautification may be complete. A 5-foot concrete sidewalk runs the full length of the project.

Striping and signing is now under way, and with the landscaping complete, the project will have a decided dressed-up appearance that does not show in the accompanying pictures.

Project Experimental—Comments and Criticisms Sought

There has been both criticism and praise directed at the design of this project. Being something new to us, we welcome criticism. The most prevalent of all criticisms from the laymen seems to be directed at the curb returns or "indented" parking lanes. The thought in their minds is that people may drive into the curb returns thinking they have the right to travel the parking lane when no cars are parked therein. The distinct difference in color between traffic and parking lanes should take care of this. As yet no accidents of this nature have occurred. We are watching this with interest, for we feel that it is but one step toward the complete separation of traffic functions, in that high-speed, slow-moving, and parked vehicles some day must be separated completely for maximum safety and convenience.

THIS VIEW ALONG THE "MIRACLE MILE" SHOWS THE SIDEWALK, INDENTED PARKING AND CURB CONSTRUCTION

Winter Snows Fought by Municipal Heroes

The Dramatic Story of Snow Removal in Traverse City, Mich.

By C. W. McINTYRE
Commissioner of Public Works and Property

IN northern Michigan, where weather conditions become so rigorous that you are apt to hear the old settlers speak of it as a "real old-fashioned winter," the matter of snow removal is a real problem. In this day and age of the automobile and other modes of rapid transportation, business, the life-blood of a city, becomes stagnant unless the streets and other arteries of communication are kept open always.

Blizzards often come upon us in northern Michigan in the dead of night. There is an enormous fall of snow, accompanied by a wind of high velocity which packs the snow to the density and toughness of metal. This is usually followed closely by sub-zero temperatures. At times like these and under these conditions, Charlie Barnes, street foreman of Traverse City, Mich., will get out in the dead of night and tramp miles through the storm to rout the men from their warm beds to work the plows. Often the streets are impassable for an automobile, and many of the men are without telephones. Hence, he must tramp, tramp, tramp.

Think what it means to get out in the middle of the night and tramp miles through the storm with no pathway to guide one. Think what it means to get out in the middle of the night to man the plows and equipment under such conditions in order that business may go on as usual. Don't you think that the man who labors under these conditions is somewhat of a hero? Nevertheless, when the dawn comes, the streets are cleaned to their full width, the walks are free of snow, so that mi-lady, on her way to work in the office or store, may trip along in her dainty, high-heeled shoes.

No Rest Between Rounds

There is one rule that must be kept in mind if streets and walks are to remain in better than passable condition throughout a long, hard winter. It is this: *Keep continually and everlastingly at it.* Never allow the snow to accumulate; never wait for the storm to abate; fight it while it rages. Snow removal from city streets does not call for the use of a huge rotary plow driven at a terrific speed. The use of such equipment would throw the snow so far over the curb that it would take an army of shovelers to dig out the sidewalks.

We have found the greatest success by using a Ross plow, with an 8-foot blade, driven down the center of the street at a speed of about 6 miles per hour. This path is then widened by pushing the snow to the curb with an Adams 5-ton grader equipped with a 12-foot blade. We own and operate three Ross plows and one Adams grader in this work.

In the downtown section the same procedure is followed. After the snow has been pushed to the curb with the Adams grader, it is shoveled into trucks to be carted away and dumped in the river or at some other place where it will not be a source of danger or damage when the inevitable thaws arrive.

Clearing the Sidewalks

The same rule—*Keep continually and everlastingly at it*—should also be applied to the treatment of snow removal from sidewalks. Unless this rule is religiously followed, the snow will bank and the walls of snow converge until nothing but a towpath remains. We have been very successful in keeping our walks widened out by the use of Baker V-plows pushed by International tractors. We own

THE RESULT OF A REAL SNOWSTORM IN TRAVERSE CITY, MICH. Garfield Avenue during the winter of 1936-37 was covered with 18 feet of snow in one storm, but was opened to traffic in 36 hours

and operate three Baker plows and three International tractors for this work.

Different Kinds of Storms

There are winter storms of various kinds and degrees of intensity. One may come booming out of the north with the ferocity of a jungle beast. Another may fall upon us with the gentleness of a benediction. But, whether it comes in the form of sleet, with tentacles that hold with the tenacity of an octopus, whether it comes with a roar borne on the wings of a hurricane, drifting and piling the snow in heaps of mountainous proportions, or whether it comes with a hush as soothing as a mother's lullaby, covering everything with a blanket as soft as eider-down, it can be conquered with the equipment and in the manner mentioned if the snow-fighting organization will—*keep continually and everlasting at it.*

Sleet storms are the bane of all concerned in thoroughfare maintenance. Therein lies the greatest potential danger. Ice is treacherous but sand is its nemesis. Therefore, fight sleet and ice storms with sand. Sand the sidewalks, sand the hills and grades, sand the dangerous street intersections. Sand and more sand.

What Does It Cost?

What about the cost of a well-organized and ably executed program of snow removal? That will all depend upon the mood of Mother Nature in a given year. For a community such as Traverse City, with a total population of approximately 14,000, an average cost per season of $3,200 over a period of six seasons does not seem to be either excessive or prohibitive. Divide this by that, and you get an average cost of 23 cents per capita. A few more figures might be of interest. Our costs for snow removal for the years 1931 to 1936 inclusive are as follows:

Year	Cost
1931	$3,348.77
1932	1,744.26
1933	1,069.18
1934	1,937.35
1935	2,444.10
1936	8,679.31

One need only scan these figures to gain a complete picture of weather conditions in any of the past six years. From a low cost of $1,069.18 for snow removal in 1933, to a high of $8,679.31 in 1936 shows a wide variation. It might be well to note that northern Michigan in 1936 experienced the greatest snowfall it has had in 47 years.

Two Railroads Cross on Culvert

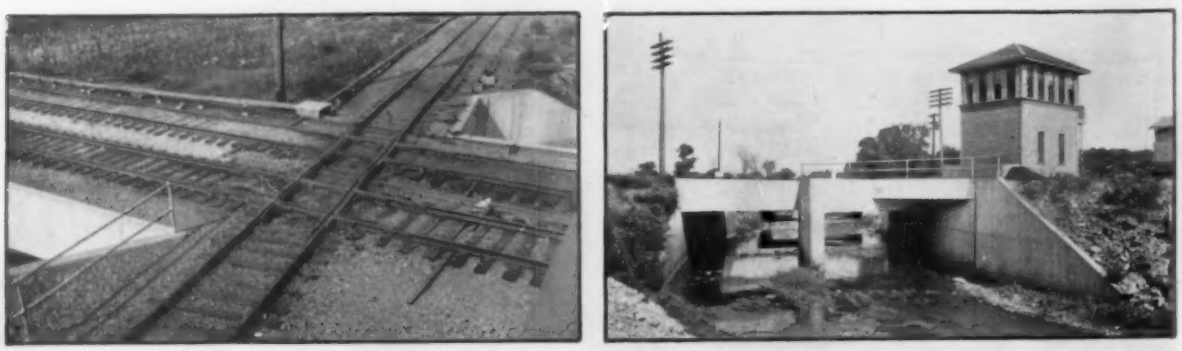
Compromise Arrangement in Birmingham, Ala., in Channel Project

FOR several years Birmingham has been working on a flood-control project to prevent Village Creek from continuing its annual rampages. Widening and deepening of the channel with bank paving and retaining walls at certain points was a large part of the project. Numerous channel changes also improved the gradient of the creek, increasing the rate of flow, and eliminated many creek crossings.

One of the most unusual changes occurred in the northern section of the city, where it was desired to eliminate a loop of the creek and by so doing to obviate the need of constructing two new culverts. This meant, however, bringing the crossing of two major railroads right on top of a new culvert. Each of the railroads and the City Engineering Department prepared plans for solving the problem. As the city's plan was the most economical, it was accepted, and so now the two railroads cross above water. The creek flows serenely in its new channel and all is well.

The Southern tracks are carried over the creek on steel I beams encased in concrete and supported by two concrete abutments and a concrete center pier. The Frisco tracks are also carried on I beams encased in concrete but imposed on the structure of the Southern. The crossing is designed for the maximum live load on the double track of the Southern, since with proper control of the railroad traffic three trains will not occupy the crossing at the same time.

The culvert cost $26,000 and was financed by a PWA loan made jointly to the railroads and the city. J. D. Webb, City Engineer, was responsible for the accepted design of the structure.



A JOB THAT WAS SAID TO BE IMPOSSIBLE: LEFT—THE ACTUAL CROSSING OF SINGLE AND DOUBLE TRACKS AS SEEN FROM THE TOWER; RIGHT—THE CULVERT AS SEEN FROM THE BED OF VILLAGE CREEK

THE MACOMB SEWAGE WORKS, SHOWING THE TRICKLING FILTER, THE SERVICE BUILDING, THE SECONDARY CLARIFIER AND A PORTION OF THE PRIMARY CLARIFIER

Sewage Treatment at Macomb, Illinois

The First-Year Record of a Plant Financed by Revenue Bonds and a PWA Grant

By W. W. NEWLUND
Kinsey Engineering Co., Pekin, Ill.

APPROXIMATELY 80 per cent of the sewage of Macomb, Ill., flows to the southwest sewage outlet contributary to Kill Jordan Creek, and the rest flows to the northwest outlet on the Le Moine River. Prior to 1935, sewage-treatment facilities at both outlets were inadequate. The southwest plant consisted of an overloaded septic tank with no provision for sludge disposal other than discharging to Kill Jordan Creek, and the northwest plant still provides only primary Imhoff tank treatment.

The major sewage problem of this city of 8,500 population was the pollution of Kill Jordan Creek, which flows through pasture and agricultural lands and has no flow other than the sewage-plant effluent during dry periods.

Sewer Rental Law Helped

The recent Illinois law permitting charges to be collected from sewer users to finance construction, maintenance and operation of sewerage works permitted the construction of a new sewage-treatment plant. Macomb was one of the first Illinois cities to set up and complete a project financed under this law.

In 1935 the Southwest Treatment Plant was constructed at a total cost of $93,000, including land and rights-of-way. It was financed by a Federal PWA grant of $25,000 and by the issuance of $68,000 of 4 per cent bonds to be amortized from revenues secured from sewer-service charges.

As the city owns and operates its own water system, it was felt that the most equitable method of charging for sewer service would be a charge proportional to water consumption. The net sewer rental bill is 12 cents per month per thousand gallons of water used. For sewer service to users not connected to the city water system the net charge is 75 cents per quarter-year.

There are 1,825 sewer users, from whom the collection of sewer rentals started in May, 1936. The first eleven months rental collection averaged $998.08, or 55 cents per month per user. The first year of operation shows the average monthly distribution of revenues to be as follows:

To retire principal and interest on $68,000 revenue bonds	$417.00
Plant superintendent and office salaries	180.00
Labor, care of grounds	105.36
Power, chemicals and supplies, including office expense	87.15
Maintenance and repairs	19.02
Surplus funds	189.55
Average monthly revenue	$998.08

During the first eight months of operation a total of $1,326.44 was expended for extraordinary items incidental to placing the plant in operation, landscaping the grounds, and other miscellaneous items not included in the statement above.

The Southwest Plant

At the Southwest Plant the incoming sewage discharges into an inlet chamber equipped with two 10-inch Chicago comminutors operated by an automatic float switch. From the comminutors the sewage flows by gravity to a 35-foot diameter, central inflow and peripheral outflow, primary settling tank equipped with a Dorr sludge-collecting mechanism. The clarified effluent from the primary tank flows by gravity to a 160-foot diameter crushed stone trickling filter with a motor-driven rotary distributor arm furnished by the American Well Works. Dickey vitrified clay underdrains carry the effluent to a collecting trough running the entire length of the central inspection gallery.

A Republic venturi meter for the sewage is located in the 14-inch influent line in this gallery, where it is readily accessible for inspection and cleaning. The outlet end of the inspection gallery is equipped with a sluice-gate so that the filter can be flooded to control filter flies, and to minimize ponding. The filter effluent flows by gravity to a 30-foot diameter, central inflow, peripheral outflow final settling tank equipped with Dorr mechanism, and thence by gravity to Kill Jordan Creek.

Settled solids from both the primary and secondary tanks are pumped by means of a screw-feed centrifugal Chicago sludge pump to a 35-foot diameter sludge digestion tank equipped with a Downes floating cover and hot-water coils. Gas from the digester is used to heat water which is circulated by a 5-gpm pump to the digester hot-water coils. During cold weather a portion of the hot water is circulated through a radiator system to heat the pump house and laboratory. Digested sludge is drawn by gravity from the digester to sand drying beds which are equipped with concrete truckways to facilitate the removal of the dried sludge. The supernatant liquor can be drawn at four levels from the digestor, and flows by gravity to the primary tank or can be wasted to the sludge drying beds.

Operating Results

The operating results for the first year were very satisfactory. The pollution of Kill Jordan Creek by Macomb sewage has been entirely abated, and the effluent at all times has satisfactorily passed State Health Department inspection. Fish minnows, which previously were absent in the stream below the outfall of the old septic tank, now thrive in the stream, several species having been noted by the operator both above and below the plant outlet.

Chlorination for odor and fly control is practiced during hot weather and has proved satisfactory. An average of 367 pounds of chlorine has been used per month. Filter flies have been kept well under control by periodic flooding of the filter. This practice washes the fly larvae to the secondary settling tank, where the larvae are scraped from the tank, dumped on waste ground and burned. Burning is speeded by pouring a small quantity of gasoline over the larvae.

The plant grounds have been improved to give a park-like appearance. The natural ground was originally of poor quality, which was not improved by grading of the excavated materials, clay and gravel. The first sludge produced was applied as a top dressing to the entire grounds, followed by grass seeding. The entire grounds now have a luxuriant growth of blue grass.

Prior to April 1, 1937, a total of 271 cubic yards of dried sludge has been produced. Sludge production during the summer months of 1937 amounted to approximately 100 cubic yards per month. The local demand for sludge fortunately exceeds the supply. Sludge is taken direct.y from the drying beds by people desiring it, so there is no cost to the city for sludge removal. Thus far no charge has been made to local residents for the sludge, but the city anticipates some revenue to be derived from future sales of sludge to quantity users.

The operating records from May 1, 1936, to April 1, 1937, show a total of 225,560,000 gallons of sewage treated. The settleable solids of the raw sewage range from 3 to 44 parts per million, with an average of 13. All settleable solids are removed, and a constant 10-day stability of the effluent has been maintained. A total of 1,270,200 cubic feet of gas was produced, and a total of 271 cubic yards of dried sludge.

The plant was completed in December, 1935, by Jansen & Schaefer Co., contractors, Pekin, Ill. The plant was designed and construction supervised by the Kinsey Engineering Co., Pekin, Ill. It is in charge of Dan Alford as Superintendent.

At present the city is constructing, with WPA aid, a pump station and intercepting sewer line to divert the sewage from the northwest Imhoff tank to the new Southwest Treatment Plant. Upon completion of this project, all Macomb sewage will be treated at the new Southwest Plant and the pollution of the second stream will be checked. Macomb is the county-seat of McDonough County, Ill., and is the site of the Western Illinois State Teachers College.

Dyes Used to Test Polluted Area

TO determine the extent and location of the distribution of sewage from the proposed sewage outfall of Treasure Island, site of the 1939 San Francisco Exposition, some novel and interesting tests have been made with aniline dyes.

In tracing the currents, uranin, a little-used German type dye now manufactured in limited quantities in this country, was used to color the water. So penetrating is red uranin that one pound of this powder will color 10,000,000 pounds of water. Originally this dye was used in Germany to trace the course of underground currents. Recently it was used by California sanitary engineers in making sewage tests at Monterey, Santa Cruz and Santa Barbara.

At the Exposition site, tests were made under the direction of the Director of Works and the Chief of the Division of Water Supply and Sanitation. One pound of red uranin released from the engineers' boat on the ebb-tide colored an area of several acres off Treasure Island a light greenish hue which could be readily distinguished from the San Francisco-Oakland Bay bridge, a distance of several miles. Several other markings were made on both the outgoing and incoming tides.

Tests were started at 10:00 A. M. on the ebb-tide with a 1-pound release of the dye. The next marking, a 2-pound release, was at 11:15 on the slack just before the flood-tide. Half-pound quantities were released at 11:00 and 11:45, and then every half-hour until 2:00 o'clock. Currents were plotted by observers located on the cantilever span of the Bay Bridge.

In charting the course of these colored areas it was noted that the 2,000,000-yard fill of the Exposition site had considerably altered the currents of San Francisco Bay, possibly necessitating some change in the location of the outfall sewers from the Exposition site.

Cooperating in making the new chart of San Francisco Bay currents were: C. G. Gillespie, Chief, the Bureau of Sanitation, State Board of Health; Walter N. Frickstad, City Engineer, Oakland; R. S. Hawley, City Engineer, Emeryville; Harry Goodrich, City Engineer, Berkeley; Arthur H. Abel, Port Manager, Port of Oakland; A. B. Crowley, Chief Inspector, Division of Industrial Hygiene, San Francisco Health Department; J. G. Barstow, Assistant Chief Engineer, Port of Oakland; Captain F. B. Butler, U. S. Army Engineers; Lieut. Harry A. Bolles, U. S. Navy; Emerson Dolliver, Assistant Engineer of the Exposition's Department of Works; and R. R. Ribal, Oakland City Sewerage Engineer.

Spending to Income and Tabbing the Payroll

By JOHN R. LINDSAY
Director of Finance, Louisville, Ky.

THE salvation of the municipality, and incidentally of the finance officer of that municipality, is constantly to reduce waste and plug up all possible leaks in expenditures. There are several fundamentals necessary to accomplish this end: (1) careful and accurate budgeting which requires (2) detailed cost accounting; and (3) rapid posting operations to show the true standing of all accounts at any given time.

It would have been impossible for Louisville to have weathered the storm of January, 1937, without the ability to control, almost to the penny, the expenditures of every city department. I am happy to say at this time that Louisville has paid all its flood bills, that there are no accounts unpaid, and that we ended our fiscal year, on August 31, with a balanced budget, and without the aid of any borrowed money. *Machine accounting is largely responsible for these results.*

I cannot emphasize too strongly the necessity for a complete break-down of expenditures by function and by character and object, and the use of this break-down in the preparation of the budget and the control of expenditures. Information of this character is almost impossible to assemble without the aid of machine accounting, and we have found budgeting on this detailed basis has resulted in substantial savings in the ordinary operations of the various city departments. In addition, it makes readily available information which will give a clear picture to the public of just where the tax money goes.

While our budget is prepared in detail both as to class of service and as to character and object, we do not attempt complete control of expenditures except by class of service. Monthly each department head requests allotment by class of service, and expenditures must not exceed the allotments; thus we have monthly control of expenditures. This method allows a budget closely approximating the total anticipated revenue, because the monthly allotments and not the appropriations are the controlling factor of expenditures. In the event that the revenue falls below expectations, adjustment can immediately be made in the allotment accounts, and except in very unusual conditions occurring during the last few months of the fiscal year, there should be no occasion to work any hardship in any city department or to end the year with other than a balanced budget.

There are several principles of municipal accounting which emphasize its dissimilarity to corporate accounting. In the first place, the financial objective of a municipality is to end its fiscal period with no unencumbered balance, whereas a corporation is constantly striving to create a large balance or surplus every year. In municipal accounting, it might even denote sound practice to terminate the fiscal year with a small deficit, rather than a large surplus, the object being to extract from the taxpayers only that amount necessary to carry on the essential functions of government. New sources of revenue are constantly being sought, for the demand for increased service and increased expenditure continues to grow at an alarming rate.

The Author.

For several years I have studied various features of payroll accounting of both corporations and municipalities in various sections of the country. As a result of this study, we have installed a procedure which we feel meets our requirements. At the same time, I realize that it is not perfect, and suggestions are invited.

We have, in Louisville, a salary schedule which classifies and describes the duties of every position in the city government with the exception of common labor. Employees are entitled to a maximum of one increase in salary in six months, but in no case may more than 50 per cent of the employees in any one classification in any division receive increases during a year. Visible index records are kept for all regular employees on Payroll Audit Record cards and payments made for all regular employees are checked on the reverse side as indicated. Each card is tabbed in one of four colors to indicate at a glance if the individual status has been changed, and the type of change; for example, black tabs indicate an increase in salary one step up in the salary schedule; red tabs indicate a change from one classification to another; a blue tab indicates a new employee in a new position; and a green tab a new employee to fill a vacancy.

Any new employment or change in salary or classification is requested on a prepared form by the head of the department and submitted to the Department of Finance, where the request is checked against the budget and the financial state of the account to be charged and the provisions of the salary ordinance. These forms, when approved by the Director of Finance, are then sent to the Mayor for his approval and returned to the Finance Department for inclusion in the payroll records.

So far as the payrolls are concerned, there are three classes of employees: first, regular salaried employees, who are paid semi-monthly on the first and the fifteenth days of the month; second, police and fire services, which are paid for regularly on an annual basis once a week; and, third, labor, skilled and unskilled, paid for on an

—From an address before the Municipal Finance Officers' Association of the United States and Canada at Boston, September 13-16, 1937.

hourly basis weekly.

A master tabulating card used with International electric bookkeeping and accounting machines is punched, showing each regular employee's name, rate of pay, account to be charged, character of work to be done, etc. Each pay day the cards are run through the machines, which automatically prepare the pay checks and also the check register, the latter further serving as a payroll record. The salary checks themselves are then checked against the individual Payroll Audit Record Cards and distributed through the head of each department.

The police and fire payrolls are handled in a manner similar to payrolls of other regular employees, but pension payment and lost time deductions are regular features of this payroll. These deductions are prepared by the individual departments and sent to the payroll clerks over the approval of the department head.

Every day the foreman of all labor crews makes out a time sheet of his laborers on the Foreman's Daily Report form, showing the hours of work and character of work done. These time sheets clear through the timekeeper's office in the Department of Works and are delivered daily to the Department of Finance. Individual tabulating cards are prepared for each person.

At the end of the week, these cards are automatically sorted and tabulated by the machines. A summary, or total, card is prepared for each man, covering his total week's work, from which set of cards the check and check register are made. Each laborer is placed on the payroll by the submission to the Department of Finance of a Change in Payroll slip, which serves each pay day as a check against the payroll. Employees are paid by checks delivered to the individual foreman on the job.

As our entire payroll procedure is a machine operation, we have been able to reduce errors to a minimum. The problem of preparing pay checks has become routine and requires little effort and time.

The employee tabulating card carries a complete record of each employee's time and efforts, so that we can accurately determine not only the cost of all classes of work done in the city but also the detailed cost of supplies and materials.

DIVISION OF THE BUDGET AND PERSONNEL
DEPARTMENT OF PUBLIC FINANCE
CITY OF LOUISVILLE
PAYROLL AUDIT RECORD

NAME OF EMPLOYEE: John Doe
SEX: M. COLOR: W.
CLASS OF POSITION: Senior Clerk
DEPARTMENT: Finance
DIVISION: Accounts & Control
SECTION:

AUTHORITY FOR APPOINTMENT
TO FILL NEW POSITION CREATED BY: Budget
TO FILL VACANCY CAUSED BY (RESIGNATION, DISCHARGE OR DEATH):
TO FILL TEMPORARY POSITION AUTHORIZED BY:
OF (NAME OF PREVIOUS INCUMBENT):

PAYMENT OF SALARY

PERIOD PAID (WEEKLY, SEMI-MONTHLY, OR HOURLY)	DATE TO BE PAID FROM	NORMAL AMOUNT OF PAY PER PAY PERIOD	SCALE OF PAY	RATE OF PAY
Semi-Monthly	9/1/36	48.75	1170.00	

ALLOWANCES: None

ACCOUNTS CHARGEABLE

FUND	DEPT.	DIV.	SEC.	FUND	APP'N	ALLOTMENT	ACTIVITY
03	03	02	00	03	03	102	

EMPLOYE WILL ENDORSE PAYROLL CHECKS (USUAL SIGNATURE OF EMPLOYEE): John Doe

WITNESS (MUST BE AN EMPLOYE WHOSE OWN SIGNATURE IS ON FILE ON AN AUDIT RECORD): Sam Smith

I CERTIFY THAT THE FOREGOING INFORMATION IS TRUE AND CORRECT, AND I AUTHORIZE THE PAYMENT OF THE ABOVE NAMED EMPLOYE AT THE RATE INDICATED SUBJECT TO THE REGULATIONS GOVERNING ATTENDANCE ON DUTY.

DATE
SIGNATURE: John R Lindsay Director
DEPARTMENT: Finance
NAME: John Doe
NUMBER: 167

DEPARTMENT: Finance NAME: John Doe NUMBER: 167

RECORD OF CHANGES IN EMPLOYMENT STATUS

DATE EFFECTIVE	TITLE OF POSITION	NATURE OF AND AUTHORITY FOR CHANGE	RATE
9/1/37	Senior Clerk	Request of Dept. Head Raise provided for in budget	1248

MONTHLY AUDIT RECORD OF PAYMENTS

	19	ABS.	1936 AMOUNT PAID	ABS.	19 37 AMOUNT PAID	ABS.	19	AMOUNT PAID	ABS.	19	AMOUNT PAID	ABS.
SEPT.			48.75		52.00							
OCT.			48.75		52.00							
NOV.			48.75		52.00							
DEC.			48.75									
JAN.			48.75									
FEB.												
MAR.			48.75									
APR.			48.75									
MAY			48.75									
JUNE			48.75									
JULY			48.75									
AUG.			48.75									

RECORD OF ABSENCES

ANNUAL LEAVE ALLOWANCE	SICK LEAVE WITH PAY FROM — TO	DA.	HRS.

LEAVE WITHOUT PAY

FROM — TO	NO. OF DAYS
2/1/37 to 2/15/37	15

WITHOUT LEAVE AND WITHOUT PAY

FROM — TO	NO. OF DAYS

INDIVIDUAL PAYROLL AUDIT RECORD CARD USED BY CITY OF LOUISVILLE, KY., WITH TYPICAL INFORMATION

Tests for Drunken Drivers

"TESTS for Drunken Drivers" is a comprehensive report recently compiled by the New York State Bureau of Municipal Information, Albany. Data cover 45 cities.

A great many different tests are now used. In a large majority of the cities the police authorities rely on a doctor's examination. Most of the tests used consist of a physician's or police officer's report on the physical condition of the suspect at the time of his arrest. It has been found that the tolerance of the person to alcohol is an important factor in the determination of just how intoxicated a person must be in order to be an unsafe driver. Accordingly, any examination of the suspect should of course be conducted as soon as possible after his arrest, for a delay of even a half-hour has a decided effect on his sobriety. The taking of blood, urine, saline, spinal fluid and breath tests involves the submission of samples for the determination of the alcoholic content, and unless authorized by statutes presents a grave question of constitutional rights. However, the experiences of the cities indicate that the courts have generally approved the tests applied to the defendant unless he was compelled to submit to these against his will.

No more copies of this report are available.

Shade Trees and Electric Wires

A Plea for More Effective Cooperation Between Shade Tree Commissions and Public Utilities

By LOUIS B. AMBLER, JR.
Assistant Professor of Landscape Architecture,
Alabama Polytechnic Institute, Auburn, Ala.

IN the conservation of the natural charm and the future beautification of our highways, the local shade tree commission should play an important part. The conflict between tree growth and line clearing for public utilities is ever present. By careful thought and a sane attitude, the shade tree commission and the public utility companies may evolve a solution which will prevent destruction of trees and secure the good-will of abutting property owners.

The public utilities which are involved are those which use overhead wires for telephone, telegraph, and the general distribution of electric current. Some trees have been judiciously trimmed to clear for the wires; some have been mercilessly slashed or topped; and others have been burned or infected by wires searing the branches; and, finally, many highways have not been planted at all because of the hopelessness of locating shade trees under a 3-foot barrier of wires.

BELOW—LINE CLEARING HAS SERIOUSLY DAMAGED THE APPEARANCE OF THE PIN OAKS

ABOVE— YOUNG PIN OAKS PLANTED TO ESCAPE WIRES

The Shade Tree Commission the Community Spokesman

For many years this problem of line clearing has been too generally in the hands of the property owners and the public utility companies. What chance does an individual have against the jostling of a large company? But with the formation of a shade tree commission, the community interest in the matter is automatically presented and the individual assisted.

Usually, public utility poles are placed within the legal right-of-way of the highway. Unfortunately, this restricts their location to a very narrow strip—often the area provided for street-tree planting, and creates a condition most deleterious to the trees. Owing to lack of forethought, our rights-of-way are entirely too narrow, but when shade trees or poles are set, adequate space for each must be considered.

Occasionally, in recent years, trained men have been employed to do the necessary trimming to provide proper clearance. Such men should be paid enough to allow them to do their work properly. It is desirable to have the same person working on the same trees for many consecutive years in order that he may study the development and growth of each individual tree, and work out a method by which the wires may be cleared without damaging the health or appearance of the trees.

Cooperation and Compromise

From the esthetic standpoint, the ideal method is to remove all overhead wires and place them in underground conduits. While on most streets and highways it is not yet economically practical to carry this out, it will come eventually. Meanwhile there must be complete understanding and cooperation between the public utilities and those interested in the conservation of highway beauty. The use of conduits overhead has been a real asset, for it is quite possible to get a cable through a tree in a satisfactory manner. If placed with care, a few individual wires do no harm to the trees. There are cases, however, where no self-respecting tree expert could be justified in clearing a line. In such instances we should expect the public utilities to cooperate willingly and remove their wires or place them in cables or in underground conduits. Sometimes the placing of lines on the back-property boundaries is practical.

At all times a shade tree commission must know what is going on that in any way affects the shade trees under its jurisdiction. When it is impossible to do trimming

without slaughtering the trees, the alternatives are: wires and no trees; beautiful trees and no wires. If the trees are improperly located and are poor specimens for such locations, or definitely do not enhance the landscape, it is only right for the shade tree commission to allow the trees to be removed and then have young trees planted close by, with due consideration to all factors of the environment. If, on the other hand, the trees are good specimens which add to the beauty of the landscape, or if they provide desirable shade for pedestrians, or are of special botanical, historical, or sentimental value, it seems only reasonable that the public utilities should find other solutions of their problems.

Trees are tremendous assets to communities as well as to private property owners. Their preservation is essential to community welfare. A shade tree commission is dependent upon the property owners for sympathy and cooperation if it is to accomplish anything in roadside beautification. Property owners may cooperate in several ways in solving the problem of line clearing. Often it is physically practicable to place the line over private property in such a way as not to interfere with the street trees within the legal right-of-way of the highway, which may be too narrow to accommodate roadway, sidewalk, street trees and public utility lines.

The Permanent Solution

It is essential for a shade tree commission to plan for the planting of young trees where they will not interfere with existing lines; and also to locate trees where poles and wires will never be placed. The only permanent solution is comprehensive planning for the future, such planning to cover the widening of roads and rights-of-way, location of poles, location of trees, and of everything which is usually placed within the right-of-way of public highways.

New Fire-Alarm at Rochester

By JERRY McCARTHY
Superintendent, Bureau of Fire Alarm and Police Telegraph, Rochester, N. Y.

THE present fire-alarm headquarters of Rochester occupies the first floor and parts of the second floor of an antiquated building on Central Avenue, between Mill and Front Streets. The building itself has been condemned, and 22 circuits of the present fire-alarm system, now in its 32nd year, have become overloaded, with no room for expansion. The National Board of Fire Underwriters has therefore found it necessary to allot penalties. This situation has forced the installation of up-to-date equipment in a new fireproof building.

During the last two years the Federal Government, to speed recovery, had a hand in bringing to Rochester a new fire headquarters, a new fire-alarm headquarters, and a new fire-department repair shop. The new fire alarm is located on Cumberland Street at University Avenue, opposite Rome Street. The building is of two stories, 42 x 80 feet. The operating room is on the second floor; battery, cable and storerooms, and a garage for the trucks, take up the greatest part of the first floor.

In the battery room are six racks for storage batteries for box-lines, primary and secondary circuits. There will be a separate battery rack for storage batteries for local circuits. All underground cables that enter the building are brought in through ducts in a cable shaft to the second floor and are terminated on the distributing frame located over the cable shaft.

The fire-alarm equipment in the operating room will consist chiefly of the main switchboard, operator's pedestal, alarm-recording pedestal, two box recording pedestals, two rectifier cabinets, a relay cabinet for relay code sender equipment, a visual indicator cabinet, a battery fuse cabinet, the telephone switchboard and a small desk adjacent.

In 1906, when the present system was built, there were 22 box circuits, four gong circuits and four joker alarm circuits. This system was automatic. The new system will be built on a board made from nine panels of ebony asbestos with four circuits to each panel. There are to be 36 box circuits, 8 primary alarm circuits and 8 secondary alarm circuits.

The added equipment on each of the box-line circuits includes the bull's-eye, which contains a lamp to be automatically lighted whenever the box circuit begins to operate, and a supervisory pilot lamp which is burning at all times except when trouble looms. This pilot light goes out when there is excessive ground leakage, a failure in the current supply, or low current, or when a box-line circuit is opened. Other equipment includes voltmeters, milliammeters, line and ground supervisory relays, a main relay, telegraph key, instrument jacks, designating plates and cardholders. Tapper bells respond to all signals transmitted. Each circuit is equipped with switches which will enable the operator to control by hand different parts of the apparatus. All electrical connections are excluded from the front of the board. The primary and secondary alarm panels are practically the same as the box-line panels.

On the operator's pedestal are mounted two four-digit manual transmitters of the Peerless type and an automatic code sender of the relay type which sends out four-digit codes at fast and low speeds. For visual observations of codes as set up, and for correction in case of error, the panel indicative of the numbers to be sent out is located on top of the main switchboard. This panel is so arranged that visual indication of the code will be given to the operator by means of lamps while he is in the process of setting this code for transmission. The whole system operates from rectifiers with storage batteries floating.

With the completion of this installation, added facilities will permit 14 new box circuits to be connected. In addition to the transferring of some of the present boxes to these new circuits to overcome present overloading, it will be possible to care for about 100 additional boxes, which should be installed at an early date.

Penetration and Hot-Mix Paving with City Equipment

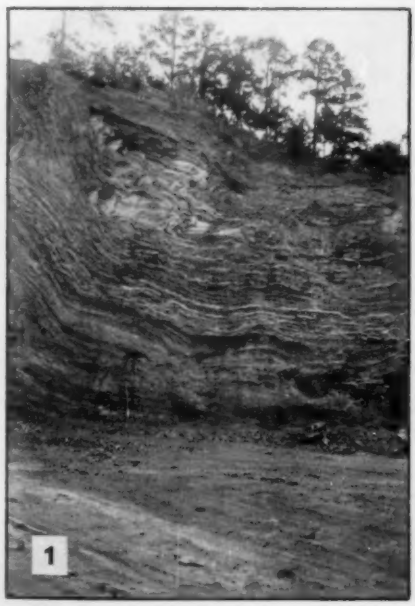
Hot Springs, Ark., Has Leased an Asphalt Plant and Is Pushing Paving Program

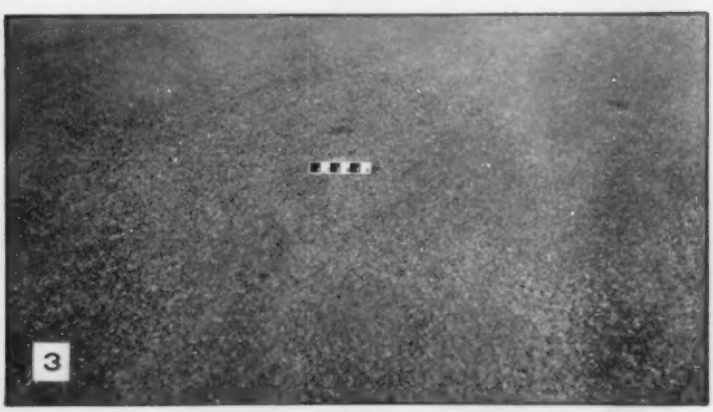
By THEODORE REED KENDALL
Engineering Editor, THE AMERICAN CITY

BEING a resort city is somewhat of a responsibility and requires that streets and parks be as attractive as possible. Hot Springs, Ark., has plenty of parks, chiefly administered by the National Parks Service, but only forty per cent of its streets are in the paved class. The city is remedying this situation rapidly through the creation of another WPA curb, gutter and paving project for a city block or more every few weeks, or the creation of another improvement district.

The program for the last year has been chiefly hot mix, because the city has leased a Cummer portable asphalt plant at a reasonable figure so that economical pavements of good design could be built. The plant is located in the southern section of the city on a spur track where chat from Little Rock and three grades of Arkansas River sand are unloaded by WPA labor. Limestone dust and the finest grade of sand are used as filler.

The plant uses fuel oil for firing a portable steam boiler and for the drier. Two 2,000-gallon asphalt tanks make it possible for a tank car to be unloaded and the excess used at once at the plant. A steam-jacketed asphalt pump used for delivery of the heated asphalt from the tanks to the





PAVING IN HOT SPRINGS, ARK., FROM QUARRY TO STREET

1. This city-owned quarry furnishes an unusually fine grade of aggregate for paving. 2. The Cummer asphalt plant, used by the city for all its hot-mix work. 3. A 30-year-old penetration pavement bound with emulsified asphalt and having a chip surface

weigh bucket is also used to pump from the tank car to the storage tanks. The fuel oil is brought in by the city distributor and stored in an old sprinkler truck. The plant requires 15 men to operate, including the hand loading and wheeling of materials and the watchman.

Laying Hot Mix

The usual Topeka mix as laid in Hot Springs consists of:

	Per Cent
Lime dust	3.0
Fine sand	19.7
Coarse sand	14.9
Intermediate sand	14.8
Chats	39.3
Asphalt	8.3
	100.0

When a street is to be paved with permanent pavement such as the Topeka hot mix or a penetration top, the city puts down a 6- to 8-inch pit-run gravel base, which is rolled with a 7-ton Hercules roller and wet during the process to consolidate it. This material is an unusual formation of disintegrated stone in streaks varying from a quite hard sandstone formation to a soft clay-like material. In its action under rolling while wet it is much like the Florida or Georgia limerock.

Before placing the hot mix, the base is primed with 0.3-gallon per square yard of RC asphalt. The hot mix is laid in two courses of the same aggregate, grading each 1 inch thick when compacted. The hot mix is hauled from the plant to the site of the work in city trucks, starting with a temperature of 275 to 350 degrees, and is placed on the street at about 300 degrees. A man is assigned to take the temperature of every load of asphalt mix as it is received on the job.

The loads are dumped onto a steel dumping-board and then shoveled to place by a crew of eight shovelers, followed up by five rakers. Two hand tampers with hot irons for sealing are used at the curb and around manholes where the roller cannot do effective work. Rolling is done longitudinally and crosswise with an 8-ton Buffalo-Springfield tandem machine. The head raker checks the pavement constantly with a 10-foot straightedge, and high spots are immediately pounded down by the hand tampers, and low spots brought up to grade with new material. Rolling is not started as soon as the material is in place, since it is necessary to wait till it has cooled a bit so that it will not shove under the roller.

The top course is placed and rolled the following day to the same thickness and of the same specifications as the base course. The top is finally dusted off with one sack of portland cement for each 100 square yards of surface.

Penetration Pavement

The base for penetration pavement is completed in the same manner as for hot mix paving, then 100 pounds per square yard of a crushed stone known as "Novaculite," varying from 1½ down to ½-inch screen size crusher-run material, is spread over the base to a thickness of 1½ inches and rolled with the 7-ton 3-wheeled roller. This is shot with ½-gallon of Bitumuls asphalt emulsion per square yard, using an asphalt base of 65 to 70 with a penetration of 150. The penetration is applied by hand with a hand spray from the city-owned distributor. As soon as the emulsion has broken, ½-inch chips are hand-spread over the surface at the rate of about 50 pounds per square yard.

The seal coat is applied in three applications of 0.6-, 0.5- and 0.4-gallon per square yard respectively. The screenings applied to the surface are first the ½-inch material, then a smaller size, and the last is almost a coarse sand. The screenings are broomed on each application to insure that the surface is completely covered and that every drop of surface asphalt is holding its allotment of chips. Each application of chips is rolled with the 8-ton Buffalo-Springfield tandem roller. The road is closed to traffic for three days to permit the new pavement to set up.

The city has a number of streets laid with penetration three years ago with both chips and sand seals, and not one square yard has yet required any maintenance. The penetration pavement sealed with sand has the appearance of a sheet asphalt surface.

City Equipment and Its Care

The Street Department owns an Allis-Chalmers Model LO oil tractor and a Caterpillar Fifty diesel, an A-C No. 14 grader with a 12-foot blade, a Caterpillar 66 grader with a 12-foot blade, and a Caterpillar 20 pulling a Stockland 8-foot blade. At the gravel pit a ½-yard Insley shovel loads the trucks, and an Ingersoll-Rand 2-hammer portable compressor is used for such drilling as is necessary, and in the street work is used to operate pavement breakers and drills. Additional construction equipment owned by the city includes: a 2-bag Koehring Dandie mixer, a self-propelled 2-bag Boss mixer, a 2-bag Insley mixer, a 7-ton gas-power Hercules roller, an 8-ton Buffalo-Springfield steam tandem roller, and two 1,500-gallon South Bend street flushers on White chassis.

The Department owns six Ford, two Chevrolet, one Indiana, and one International truck with dump bodies and one Chevrolet and one International 2½-ton pick-up trucks. There are still two 2-horse carts in service in the department.

The motor equipment is greased every Saturday afternoon by the operators.

James Holland is Superintendent of Streets and L. R. Plemmons is City Engineer of Hot Springs, Ark.

When Building Codes Were Really Drastic

IT is fortunate for careless builders that the penalties of the ancient code of Hammurabi are not now in effect, it was recently said by officials of the Federal Home Loan Bank Board, which has instituted a permanent campaign against shoddy construction. Under the code of Hammurabi, King of Babylon, more than 4,000 years ago, if construction was not sufficiently sound to withstand ordinary wear and tear, the contractor was forced, at his own expense, to repair whatever damage resulted. "And if the building collapsed, causing the death of the owner, then the contractor was put to death," an official stated. "While none of us would suggest the imposition of such penalties as Hammurabi imposed, we must find more adequate means of assuring to the home owner sound construction and more adequate security for his investment. There is every prospect that in the years ahead of us, greater emphasis will be placed on the necessity of seeing that the home is really well designed and constructed, and that those lending agencies which exert every possible effort to aid the home owner in getting full value will have most of the worthwhile loans."

The Small City and Town Become Industry-Conscious—Part I

By ASA S. KNOWLES
Head, Department of Industrial Engineering, Northeastern University

This article is based upon a thesis project prepared for the New England Council in 1936-37, by Warren Ganong, under the supervision of the author.

UNTIL the late twenties, the larger cities of the United States held the spotlight in industrial development and growth. More recently, however, the small community has awakened to a need for industry. Towns which heretofore have been indifferent toward industrial growth are now carrying on energetic industrial development programs. In contrast to the former lethargic attitude, the small town* is alive to its possibilities and is endeavoring to obtain industries promising a reasonably secure livelihood and means of support for the community. This activity has resulted in the growth of industrial development programs aimed at the attraction of new industries, the expansion of existing industries, or both; but, in reality, this is only the means to an end, for ultimately the industrial "shot in the arm" is expected to increase the wealth of the town and to bestow upon it the advantages attendant upon prosperous industries—employment for inhabitants, increased municipal revenues, expanded local business, and other advantages.

In THE AMERICAN CITY for November, 1929, E. S. Besselievre[1] lists in more detail the primary objects of a community in encouraging the location of a new industry as follows:

1. Larger population
2. Employment for existing population not otherwise engaged
3. Increased municipal revenues, taxes, water rents, etc.
4. Increased business for local merchants
5. Increased freight shipments to induce better rail service
6. Increased volume of mail to bring better postal facilities
7. Increased bank deposits
8. Advertising value given by distribution of local products
9. Recognition by highway and other state departments for improved roads
10. Increased property valuations, giving greater bonded limits and permitting extensive local improvements.

Summarizing these, it may be said in brief that the all-inclusive purpose of the development program is to make the community "a better place in which to live."

Industrial Development Work of New England Small Towns Studied

In the fall of 1936, the Department of Industrial Engineering at Northeastern University in Boston was requested by the New England Council to make a study of the small-town industrial-development programs in operation in New England and selected communities elsewhere in the United States. Its purposes were: (1) to ascertain to what extent the small towns are really interested in attracting industry; (2) to obtain information about the procedures followed by small towns having programs in operation; (3) to establish, if possible, a sound industrial development program for small communities.

At the outset, the small community was defined as any town or city having 25,000 or less inhabitants. Questionnaires were sent to these towns, some 200 in number, asking them to indicate whether or not they had in operation at that time an industrial development program, and, if so, to indicate its nature, modus operandi, costs, administration, etc. A sizable number of these questionnaires were returned with the information desired, and many were supplemented with letters of explanation.

For purposes of analysis, the towns replying were grouped according to size. The extent of the existence of development programs is shown in Chart I.

Three Types of Industrial Development Program

The study revealed that the development programs initiated by small towns replying to the questionnaire have been of three general types:

1. Those subsidized by the local chamber of commerce, board of trade, real estate association, etc.
2. Those instituted by the state or local government (or even by the Federal Government, as is the case at the Preston County Project in West Virginia[2]).

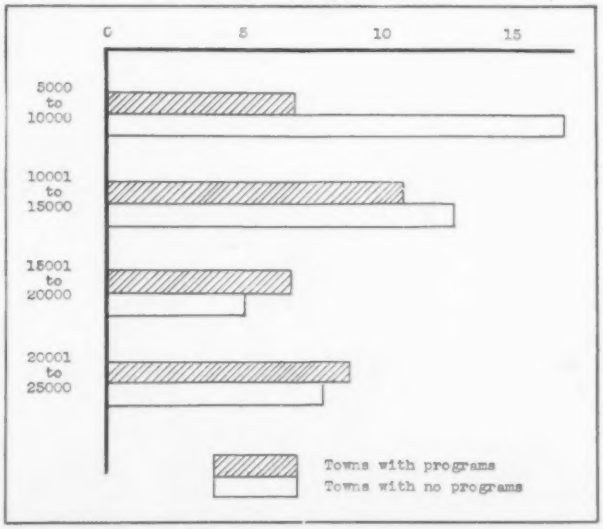


CHART I.—NUMBER OF NEW ENGLAND TOWNS IN EACH POPULATION GROUP WITH AND WITHOUT DEVELOPMENT PROGRAMS

* In this article the author uses the term, "small town" as meaning a municipality of less than 25,000 population, whatever its legal governmental title—city, town, village or borough.

[1] "Will That New Industry Be of Real Benefit to Your City?"; page 119.

[2] *Review of Reviews*, December, 1933, page 45.

3. Those launched through the efforts voluntarily contributed by public-spirited citizens.

The chamber of commerce program is rather widely used and has had conspicuous success in some localities, while in others the results have been discouraging, if not an utter failure. The Industrial Association of Danbury, in Danbury, Conn., and the Danvers Chamber of Commerce, in Danvers, Mass., fall into the former classification. Danvers reported every foot of industrial floor space in the town occupied. Norwalk, Conn., with a program costing about $2,000 per year, reported enthusiastically that the cost was justified a thousandfold.

On the other side of the fence are Waterville, Maine, and Oshkosh, Wis., both having had no satisfactory results so far. It is of significance, however, that both of these towns indicated on their questionnaires that they were attempting to keep down the cost of government. Waterville reported: "We now have a finance commission to regulate expenditures of the city government, and it is proving very successful." Other things being equal, it may well be that the successful regulation of expenditures is defeating the success of the industrial development program, for both communities have spent relatively small amounts to promote their industrial programs. In the last analysis, the effectiveness of this type of program depends upon the importance attached to it by its sponsors, the type of men conducting it, and the money available for its prosecution.

The success of the second type, or local government program, depends upon the same factors influencing the first, except that the personal factor assumes greater importance. In this connection, the Federal project in West Virginia, known as the Preston County Project, should prove interesting and valuable, for the purpose is to demonstrate the feasibility of locating small industries in rural areas. As far as can be learned, nothing as yet has been accomplished there along this line. Millard Rice, in *Nation's Business*,[3] looks unfavorably upon the whole project.

Moscow and Stowe, Vt., on the other hand, have successfully demonstrated the practicability of industries in country districts which use the products of the land. President Roosevelt, who has been interested for years in the possibility of integrating the factory to the land, has called it "an excellent example of rural industrialism." He added the belief that by following the same idea of linking up land and factory "every state could be dotted with small country industries." The Tennessee Valley Authority shows the influence of Moscow and Stowe. Here we have local industries fed by central power using the raw materials and the native skill of the countryside, the workers living on the land.[4]

The third type of development program is undoubtedly the most desirable and is being used to some extent in New England, although whether because of necessity or choice is not always clear. Danvers, Mass., a town well able to bear the cost of a program, has had excellent results from the efforts of the unpaid members of its present industrial board. Other New England towns operating active programs on no-cost bases are Walpole and Turners Falls, Mass., Derby and Hamden, Conn., and Biddeford, Maine. In these instances the programs are motivated by public-spirited men who are actively interested in its success, and bend every effort to this end.

[3] "The Fuller Life at Readville." May, 1936, page 25.

[4] Webb Waldron: "They've Got a Grip on the Future." *American Magazine*, March, 1934, page 64.

Does the Small Town Offer Any Advantages?

The small town offers some definite advantages for industrial location which are not attributes of the larger city. In the first place, there is a difference in the manner of living. Life is carried on at a more even pace; the strain of city life is absent. A healthier, more rational life is offered at a lower cost. This should act as an incentive to employers who seek a healthy, efficient, and steady working force. A low labor turnover is a primary advantage of the small town. In the first place, more people own their own homes, and, secondly, transient labor is not attracted to the small town in large numbers. Although it may be that the labor supply available is unskilled, it is often more adaptable to training than is city labor where other occupations are available to those unwilling to undertake apprenticeship training, necessitating lower pay. In keeping with these arguments, Gloucester, Mass., reports:

"There is a splendid opportunity for some industry to locate that would not require too highly skilled labor. We have a lot of young men out of employment. These are all good workers, intelligent, and could readily be taught the requirements in almost any manufacturing process, provided it isn't too technical."[5]

Small-Town Bait

The manufacturer finds that the small community will offer him special favors unobtainable in the urban location. Reduced tax and insurance rates, exemption from some public assessments, free factory buildings or land, and other bait, are the customary forms of inducements. The Kelley-Springfield Tire Co. located its huge new plant in the city of Cumberland, Md., largely because of such concessions. Typical of this in New England are Old Town, Maine, which offers free tax and free rent, and Athol, Mass., and Putnam, Conn., both of which offer moving expenses. These are not the only advantages, however, which accrue to the manufacturer who decides upon the rural location. Indeed they may prove to be false advantages unless they are supplemented by the additional factors of a steady labor supply, freedom from labor strike (in some instances), nearness of raw-material supply, and availability of markets.

Industry Attracted by "Bait" Often a Liability

Although the foregoing "inducements" still play their part in the attraction of industries to a community, it is gratifying to discover that the tendency today is definitely away from the practice. The small communities have often discovered to their sorrow that the offering of a bonus, free land, free taxes, etc., has led to exploitation by "wandering panhandlers," the "hobo" employers. A *New Republic* editorial in March, 1936, states that a chamber of commerce in Pennsylvania offered a bonus of $2,500 to bring to its town a shirt factory paying an average wage of about $3 per week. After two or three months of operation this firm was induced to move to another Pennsylvania town three counties away for another $2,500 bonus, where it again flourished at the same low wages. Gloucester, Mass., had a similar experience with an un-

[5] L. J. Hart, Manager, Gloucester, Chamber of Commerce, January 12, 1937.

reliable shoe concern, an unwise agreement which cost the town nearly $5,000. Thus it appears that chambers of commerce and manufacturers' associations, themselves, have been the chief offenders in enticing employer hobos to skip about the country.

But the lesson has been well learned; today more and more towns are abandoning the practice which has brought them so much grief. Turners Falls, Mass., states with certainty, "We feel that companies that require much financial help are not good prospects." Stoughton, Mass., is likewise in keeping with the times, saying, "We have many real advantages, but inducements are definitely out of order." There is no mistaking the fact that the small town is not only awake to the need for a development program, but is beginning to learn the difference between a good and a poor program. L. J. Hart, Manager of the Gloucester Chamber of Commerce, sums up the matter thus: "Our feeling is that if an industry looking around for a location does not find in Gloucester those conditions that afterwards will enable it to operate successfully, it is rather useless to hold out any inducements."

The Selection of the Development Program

It should be recognized that each community has its own advantages and disadvantages, and that each community is especially suitable for some particular industry. These factors, therefore, should determine the set-up of a development program, while its form and the course of action should depend upon the needs of the community. A community with no industries cannot proceed as would one having factories already and where dire need of employment exists. The procedure must be more aggressive than in a town where immediate jobs are not a necessity.

The most effective program will be one that attempts to accomplish a single purpose. This purpose, however, may have several phases:

1. The expansion of the town's existing industries
2. The attraction of plants manufacturing entirely new products
3. Attracting branch plants of established industries
4. The relocation of industries already established in other communities

The program may be shaped around one or a combination of these ideas. It appears that the one which has had most success is that which concentrates upon the attraction of branch plants of established industries rather than upon the other possibilities.[5]

The result of a survey conducted by the Metropolitan Life Insurance Co. indicates that the establishment of new industries and branch plants is of far more importance to a community than the attraction of an established industry from another locality. The survey also shows, however, that, as far as individual plants are concerned, branch plants and relocated plants are more important in number of employees, for in the United States as a whole, and in each geographical area, the average number of employees in the branch and relocated plants is higher per plant than the average number of employees per new industry.

The second most successful plan is one where the communities have attempted to expand their present industries alone. It is logical that other industries should be attracted to a community in which existing industries are expanding and prosperous. Hence, this program is particularly desirable because it not only expands existing plants, but attracts new ones. Oshkosh, Wis., offers one viewpoint:

"We are confining ourselves at the present time to building up local or existing industry. Distressed industry at the present time is depending on financial inducements offered by localities to put them on their feet, and this locality does not lend itself to the purchase of an industry."

Likewise, in Barre, Vt., "the Chamber of Commerce directors went on record some time ago as being in favor of doing all we possibly can to further the granite industry in Barre rather than to spend much time seeking new industries." These opinions indicate the tendency to begin building the home industries before going afield for new ones.

[5] "Industrial Development for a Community," published by Metropolitan Life Insurance Co., 1933, New York, pages 20 and 21, and Tables III and IV.

(To be continued in the February issue)

How Six Iowa Cities Use Their Land

THE following table has been prepared from one of the recently published reports on "Urban Land Use" of Iowa cities for the year 1936, prepared by the Iowa State Planning Board in cooperation with the Works Progress Administration.

City	PER CENT OF TOTAL CITY AREA VACANT	PERCENTAGES OF DEVELOPED AREA OCCUPIED BY VARIOUS USES					
		Total Dwelling Area	Commercial Area	Industrial and Railroad Property	Streets	Parks and Play Areas	Public and Semi-Public
Burlington ...	66.74	24.37	1.82	16.74	44.47	6.53	6.07
Fort Dodge...	42.45	32.79	4.83	11.57	38.56	7.45	4.83
Keokuk	47.36	31.75	2.89	8.01	48.02	4.02	5.30
Marshalltown .	51.28	42.70	3.63	13.99	21.19	2.89	7.60
Ottumwa	56.22	42.74	2.58	10.30	36.33	3.57	4.48
Sioux City....	69.97	27.09	1.89	11.53	35.03	12.27	12.30
Average	58.314	39.33	2.38	10.79	33.61	6.33	7.61

In the Ottumwa report from which the foregoing figures were taken, it is explained that:

"Urban land within any municipality, whether self-contained or satellite, is naturally divided into two major classifications: (1) developed, and (2) vacant or unused proptry. The term 'developed' area as used in this report includes all the area that is used for any urban purposes, whether public or private, such as streets, railroads, parks, dwellings of all kinds, and all commercial and industrial uses. 'Vacant' property is that portion of the city which at the date of this survey was unused for any urban purpose. It should be noted that portions of the area indicated as vacant property were often being used for farming and truck gardening. Such uses are rural in character as distinguished from urban. In this report only those portions of the farm tracts which actually have been built upon have been considered as in urban use. . . .

"While the lands occupied by streets, railroads, and parks and playgrounds come within the classification 'public and semi-public,' they have, for the purpose of this report, been considered separately. As here used, 'public and semi-public property' includes such items as city property, institutions, cemeteries, churches, libraries, golf courses and clubs. While all of these items are not necessarily available to the entire population, they are so used by a portion of the public that even those privately owned assume a quasi-public character. In this survey, schools (public and parochial, grade and high schools), churches, libraries, cemeteries, and city property have been tabulated separately."

Checking Up on the Driver

By A. R. LAUER
Associate Professor of Psychology,
Iowa State College*

IT is not possible to discuss all causes of accidents here. It suffices to say that if every driver knew his limitations and allowed for them by giving his attention to these weaknesses, few accidents would occur. A lowered level of attention is, however, only a secondary cause of accidents. The primary causes are numerous and may be exemplified by internal and external stimuli of a more specific nature; such as worry, absent-mindedness, pain, inferior sense organs, inability to estimate the possibilities of the automobile, clumsiness, etc.

How Can Driving Ability Be Measured?

The measurement of driving ability may be accomplished by three different techniques. There is not always complete agreement among experimenters as to the most desirable method.

The first to be described has advantages in certain ways and may be used for certain types of measurements such as blood pressure, reaction time, nervous stability, color vision, visual acuity, auditory acuity and similar capacities. It is the classical method based upon what is technically known as atomistic psychology. The use of such measurements alone has always yielded questionable results in any complex type of behavior, for the reason that the individual acts as a unit. A man, at his poorest, is not a mere mechanical device. A characteristic of behavior in general is that the organism tends to overcome obstacles. Block one avenue of response, and another will be substituted for it. This is not generally true of machines. A defective spark-plug will mean a missing cylinder of your automobile. It can be easily measured or tested and corrected. This fact does not hold true of behavior. A frog with one leg tied will use an opposite one to remove an annoying stimulus on a certain part of the body. A man may make a greater success with some handicap than he would without it. This is not a general rule. Many of our outstanding men have surmounted overwhelming difficulties in attaining success. This principle seems to operate at various levels of behavior and makes isolated measurement of responses difficult to interpret or to synthesize into any composite index of future reactions.

The second method is based on the theory that the driver responds as a unit. A composite driving apparatus such as shown in Figure I is used. Three aspects of driving are measured: (a) The contacts made by the driver through manipulation of a tiny car over the miniature roadway moving toward him in the cabinet; keeping on the road. (b) The efficiency of observation; number of signs missed. (c) The time to complete the trip. The three do not measure the same thing as indicated by statistical analysis. The error score seems to approximate the capacity of the driver to stay out of close situations, while the manipulation score—keeping the small car on the roadway—seems to be the most closely related to actual manipulation. Both are a function of the time required to make the "trip." This in a rough way approximates the amount of caution exercised by the driver.

* On leave for special research project with Highway Research Board at Hartford, Conn.

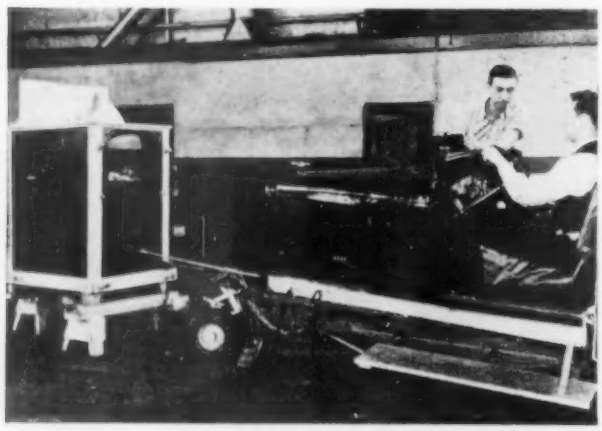


FIGURE I.—A COMPOSITE MEASURE OF DRIVING IS MADE WITH THE APPARATUS SHOWN ABOVE

The fundamental responses or movements of driving—steering, gear shift, braking, use of accelerator, horns, observing traffic signs, and other judgment problems of driving—are introduced. The score is made in terms of manipulation, errors of observation, and time taken for the trip of six revolutions of the leather belt on which is painted a roadway

Can Drivers Be Examined Using Their Own Cars?

The third measuring instrument used is an outdoor field covering an area 200 x 500 feet, in which the operator uses his own automobile to negotiate a maze-like series of paths and lanes through which he must back, turn, give signals, observe signs and stop-lights, and otherwise demonstrate his ability to drive under experimental conditions. A "checker" rides with the driver and records his errors or mistakes. The driver is timed for the complete trip, as well as for parking, under standard conditions. Three forms of this field have been worked out.

There is evidence of two types of driving being associated with high accident records: (1) that in which the person at the wheel demonstrates gross inadequacy at handling the machine; and (2) that in which the driver shows very superior control. Generally, average performance on this test indicates greatest safety. However, it was found that some drivers become very cautious when observed and do not show their real characteristics. For this reason the indoor driving apparatus seems to give most valid results in the analysis of drivers' reactions.

What Constitutes a Good Driver?

The experimental data so far analyzed will indicate

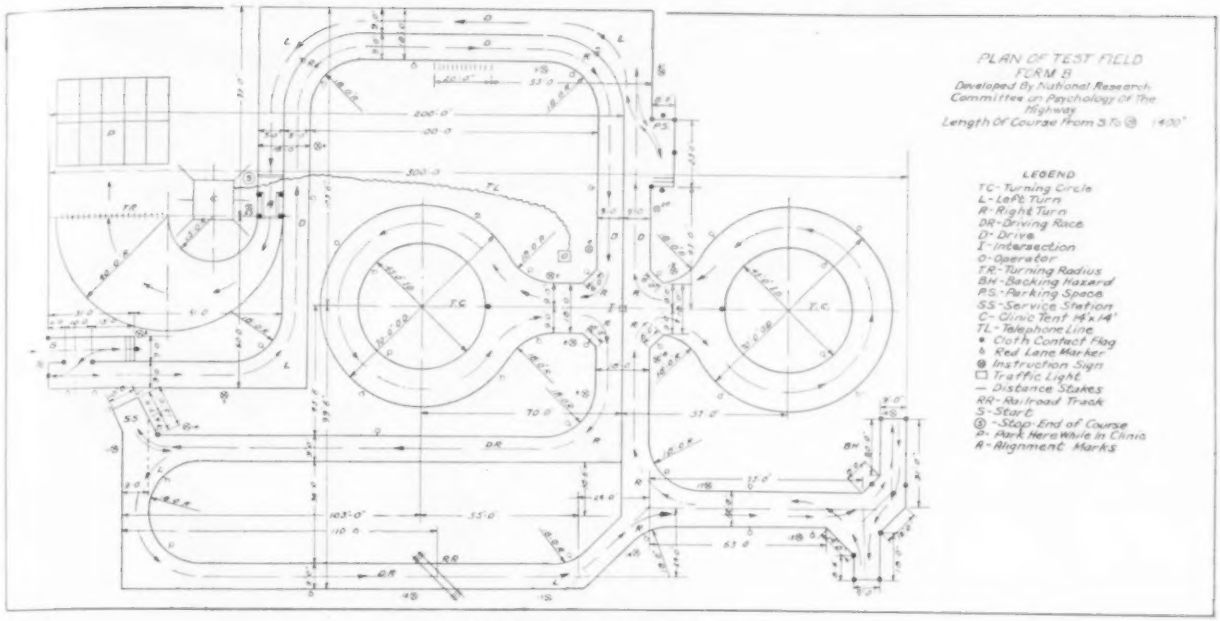


FIGURE II.—THE SMALL TEST FIELD

The driver starts in at S, moves around the field, following regulation STOP and GO signs and other markers. He parks, backs, gives hand signals, and otherwise negotiates the field as rapidly as possible. Time is taken for the total trip time, and for parking time, and the number of errors are counted. Each driver uses his own car

the general trend of results. In all, more than 9,000 subjects have been studied. Most of these persons were ordinary drivers whose experience records could not be determined accurately. For this reason the equipment has been built into a traveling laboratory for securing information about drivers in industrial plants. The results given here were obtained from a similar group of men. Their driving and accident records were known.

While these observations are based upon only about 9,000 cases, the general nature of results seems to indicate that a municipality, transit company or other employer of drivers should pick men of the following characteristics for best records of safe driving:

1. Between the ages of 25 and 35. After 40 a driver may become less safe.

2. Stronger men seem to have an advantage over weaker ones.

3. Those with more activity are usually classified as better drivers.

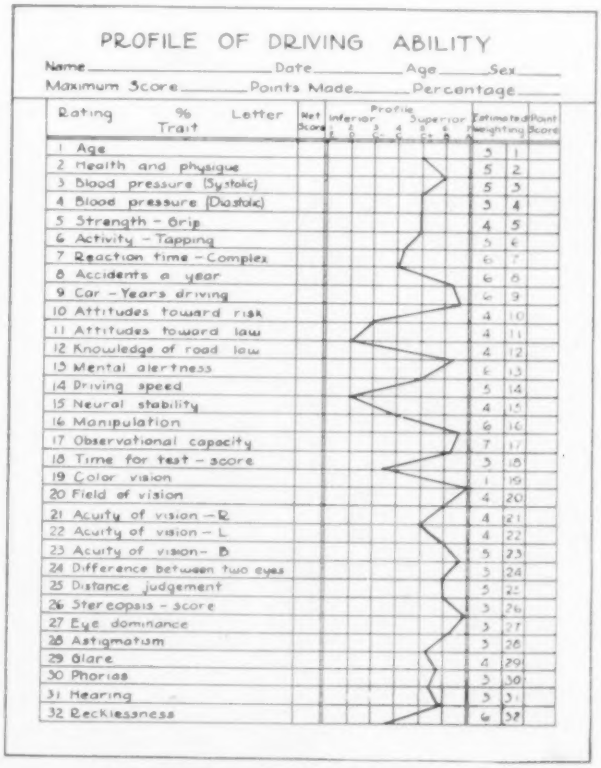
4. Men who are not too emotional or excitable, or the reverse, too lethargic, seem to stay out of trouble best. A little fear or anxiety will make a man cautious, too much paralyzes him.

5. Average intelligence is needed. Those below average are somewhat of a menace, while a man too intelligent for his job gets into "jams" of various types. He is likely to be thinking of something else.

6. Those with some high school work seem to be better drivers than those with very little education. One with much education, say a college degree, as a commercial driver per se is likely to be a misfit.

7. Experience in years and the types of cars driven is a vital factor.

8. The driver should be in good physical condition; free from epilepsy, high or low blood pressure, poor vision, certain extremes of color blindness, or organic diseases. His hearing should be near normal, perhaps not more than 20 per cent in hearing loss. His ability to judge distance should be superior. He should be mechanically inclined and have a knowledge of traffic regulations.


PROFILE OF DRIVING ABILITY

Name _____ Date _____ Age _____ Sex _____

Maximum Score _____ Points Made _____ Percentage _____

Rating % Trait	Letter	Net Score	Profile Inferior 1 2 3 4 5 6 7 Superior	Estimated Weighting	Point Score
1 Age				5	1
2 Health and physique				5	2
3 Blood pressure (Systolic)				5	3
4 Blood pressure (Diastolic)				5	4
5 Strength – Grip				4	5
6 Activity – Tapping				5	6
7 Reaction time – Complex				6	7
8 Accidents a year				6	8
9 Car – Years driving				6	9
10 Attitudes toward risk				4	10
11 Attitudes toward law				4	11
12 Knowledge of road law				4	12
13 Mental alertness				6	13
14 Driving speed				5	14
15 Neural stability				4	15
16 Manipulation				6	16
17 Observational capacity				7	17
18 Time for test – score				5	18
19 Color vision				1	19
20 Field of vision				4	20
21 Acuity of vision – R				4	21
22 Acuity of vision – L				4	22
23 Acuity of vision – B				5	23
24 Difference between two eyes				3	24
25 Distance judgement				5	25
26 Stereopsis – score				3	26
27 Eye dominance				3	27
28 Astigmatism				3	28
29 Glare				4	29
30 Phorias				5	30
31 Hearing				5	31
32 Recklessness				6	32

FIGURE III.—AFTER THE MEASUREMENTS ARE MADE, THEY ARE LAID OUT ON THE PROFILE CHART FOR CAREFUL STUDY

Measured traits are here graphed for a test driver of a large commercial concern. It is to be noted that he is above average in practically all traits and low only in three—attitudes toward risk, attitudes toward law, and driving speed. All three of these traits are in keeping with the nature of his work

Vicksburg's Airport Receiving Recognition

Four Grassed Runways and Good Natural Drainage Offer Promising Future for 168-Acre Field

THROUGH consistent efforts and the cooperation of the Works Progress Administration, the city of Vicksburg, Miss., population 25,000, has in the past two years acquired the land and created a municipal airport that is already receiving outside recognition deserving of even greater efforts locally to complete its equipment with an adequate administration building and hangars. The Airport, located 7½ miles from the center of the city, has four long runways covering the needs of planes for the prevailing wind directions. The longest runway is 5,400 feet in length, and another nearly at right angles, supplementing the first and almost as important as regards prevailing winds, is 4,500 feet in length.

As far as the serviceability of the field is concerned, it is about 85 per cent complete, with every foot of the surface available for taxying and take-offs or landings. The preparation of the field has required the clearing and grubbing of 24 acres, the excavation and moving of 413,242 cubic yards of earth, sodding of 6,000 square yards, 3,000 cubic yards of ditches, and fine grading of 45,000 cubic yards of material. Several low sections of the original site have been filled with material from the high ground, greatly increasing the effectiveness of drainage and preventing scour.

THE BRICK SPILLWAY HANDLING SURFACE DRAINAGE FROM THE VICKSBURG AIRPORT AND LEADING INTO A 48-INCH CORRUGATED CULVERT

THE 51-FOOT TOWER CARRYING THE 1,000-WATT REVOLVING BEACON AND THE WIND CONE AT THE VICKSBURG AIRPORT

The major drainage structure is a 48-inch Armco culvert, asbestos-lined and coated, which runs 275 feet from the low point of the field, where a weir has been constructed to check the flow of sediment, to a brook, thus taking the water away from the highway serving the field, which was being eroded considerably by the natural drainage from this area.

The entire field is protected against the presence of livestock, which roams at large in Mississippi, by a hog-wire fence with barbed wire top. All the work on the field has been done through WPA cooperation, employing an average of 80 men continuously for two years. A special act of the State Legislature was required to permit the city to purchase the 168-acre tract of land outside the corporate limits of the city.

The heavy grading was done under a WPA contract, using two 12-yard LeTourneau Carryall scrapers pulled by Caterpillar Sixty tractors. The fine grading and finishing of the surface, as well as the filling-in of some washes caused by the winter rains before the sodding and seeding had reached the present state, was done by men with shovels and wheelbarrows.

Beacon and Lights

The field is already protected with boundary lights and obstruction lights, and a 1,000-watt Pyle National 36-inch beacon with a green screen rotating 6 rpm has been installed. The boundary lights are also Pyle National. Westinghouse transformers for 110-volt, 2,300-100-volt and a 5-kw, 2,300-volt circuit have been installed to care for all the lighting needs of the field.

A power line serving a small section nearby is located just outside the boundary of the field, but this is being moved the required distance by the local power company. Other power lines have already been equipped with obstruction lights, there being 18 single obstruction lights installed for this purpose and on a single house located to the south of the field, as well as five double obstruction lights. Thirty boundary lights define the section of the field maintained for planes, and the cable and conduit are all in place for future installation of runway floodlights. The ceiling projector and alidade are installed. There are 5,925 feet of single conductor No. 8 General Electric Parkway cable installed, 725 feet of double conductor No. 8 G-E Parkway cable, and four transformers with a complete Bulldog Electric Co. switching panel for all outside lighting equipment are installed and connected ready for service.

The Municipal Airport has cost a total of $134,149.57 to bring it to its present state of service, and it is expected that work will be continued to erect the administration building and hangars so that the city may realize to the full the benefits of this modern transportation facility. Of the sum expended, $22,841.13 has been spent by the city as sponsor for the project, and the remaining $111,308.44 has been furnished by the Works Progress Administration. J. J. Williamson, Alderman, is in charge of the administration of the Airport, with Garven R. McClain as Superintendent of the Airport.

Junior Inspectors Aid Anti-Litter Fight

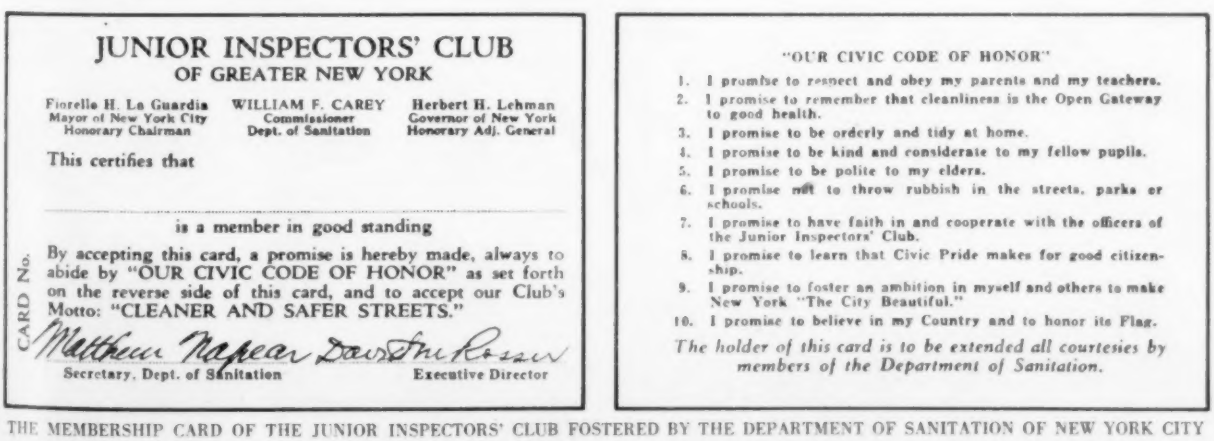
New York Offers an Example That Any City Can Follow for Organizing Youth for Cleaner Streets

WHAT has been accomplished in a metropolitan city with a large foreign population in organizing the school children into a group interested in and working for cleaner streets is worthy of the attention of every city official in the United States. The cleanliness of Main Street or Broadway in any town is an advertisement to the passing motorist, telling him forcefully whether that town is progressive and alive, or is just another community where no one takes an interest in community welfare and municipal housekeeping.

Many officials remark: "The problems of the largest American city are so different from ours that we are not interested in them." But here we offer a program applicable to all cities, large and small.

As a firm believer in education and realizing that civic ideals can best be installed in the hearts and minds of children at an early age, Matthew Napear, Secretary of the Department of Sanitation of New York City, hit upon the idea that children between the ages of six and eighteen should be induced to join an interesting, worth-while club, because such an effort could go far in engaging their minds with wholesome activities, thus avoiding delinquencies, and make them feel that they are an important part of the machinery which helps to make the city a more wholesome place in which to live. And so, on September 26, 1934, the Junior Inspectors' Club was formed. Sponsored by the Department of Sanitation, it was designed to interest boys and girls throughout the city of New York to take pride in clean streets, adopting the slogan, "Do Not Litter the Streets." Clean streets served as a stepping-stone to personal cleanliness, of both body and mind.

By October 15, 1934, about 500 children had enrolled. Today the Club has a membership of over 86,000, of which approximately 5,000 are officers, under the titles of Squad Leaders, Platoon Chiefs, Lieutenants, Captains, Field Marshals and Majors. This membership is organized into units, under supervision in their own respective communities, through which leadership is developed. Through these efforts Department of Sanitation officials, aided by school teachers, are building the finest type of character, which must result in a generation of better citizens.



JUNIOR INSPECTORS' CLUB
OF GREATER NEW YORK

Fiorello H. La Guardia, Mayor of New York City, Honorary Chairman — WILLIAM F. CAREY, Commissioner, Dept. of Sanitation — Herbert H. Lehman, Governor of New York, Honorary Adj. General

This certifies that

_____

is a member in good standing

CARD No.

By accepting this card, a promise is hereby made, always to abide by "OUR CIVIC CODE OF HONOR" as set forth on the reverse side of this card, and to accept our Club's Motto: "CLEANER AND SAFER STREETS."

Matthew Napear — Secretary, Dept. of Sanitation

Dan'l Chas. Rosser — Executive Director

"OUR CIVIC CODE OF HONOR"

1. I promise to respect and obey my parents and my teachers.
2. I promise to remember that cleanliness is the Open Gateway to good health.
3. I promise to be orderly and tidy at home.
4. I promise to be kind and considerate to my fellow pupils.
5. I promise to be polite to my elders.
6. I promise not to throw rubbish in the streets, parks or schools.
7. I promise to have faith in and cooperate with the officers of the Junior Inspectors' Club.
8. I promise to learn that Civic Pride makes for good citizenship.
9. I promise to foster an ambition in myself and others to make New York "The City Beautiful."
10. I promise to believe in my Country and to honor its Flag.

The holder of this card is to be extended all courtesies by members of the Department of Sanitation.

THE MEMBERSHIP CARD OF THE JUNIOR INSPECTORS' CLUB FOSTERED BY THE DEPARTMENT OF SANITATION OF NEW YORK CITY

Membership Cards

A membership card is issued to each boy and girl not only as a means of identification, but as a reminder of the duties and obligations to which each child must adhere to be in good standing. There are no dues or assessments, and the membership is open to all children between the ages of 6 and 18, regardless of race, color or creed.

Club Members Broadcast

Through the cooperation of the WPA, together with the facilities of the Municipal Broadcasting Station, WNYC, a series of broadcasts began, designed especially for Club members. Broadcasts are held every week-day except Saturday.

Members participate in two of these weekly programs, and an endeavor is made to select talented children from the entire membership, auditioning and instructing them in radio technique and presenting them over the children's broadcast. The purpose of this type of presentation is threefold. First, it establishes confidence, poise and self-reliance in the children who present the program, and gives to the child a broader viewpoint which he or she might never otherwise attain. Second, such broadcasts inspire and encourage other children to emulate these children. The third advantage of the broadcasts is that they create among the members a more direct and active interest in the club, because they bring them into personal contact with each other.

Types of Programs

On November 17, 1936, the Club presented its first children's program, with a group of 25 Boy Scouts from the Williamsburg Bridge section whose average age was about 13 years. They gave a satire on a radio broadcast.

Another very interesting program came from the Chinatown section. Twenty-five little Chinese girls from 9 to 15 years of age, all of whom are Junior Inspectors, sang in Chinese and in English. Mr. Napear reports: "You should have seen their eyes sparkle with pleasure for they knew that every kid in Chinatown was listening."

Other Activities

Counselors have been engaged in all five boroughs, Mr. Napear reports, to organize the children to take them on trips to mercantile and industrial plants, museums and the Brooklyn Navy Yard. Baseball, basketball, stamp clubs, ship modeling, airplane construction, woodworking, swimming, hiking, fishing and planting are some of the hobbies now in actual swing among Club members. An "honor guard" of 40 members represents the Junior Inspectors' Club at important city functions.

How You Can Use the Idea

Not every city possesses a municipal broadcasting station, nor even a local broadcasting station. That need make no difference, for portable public address systems are available anywhere, and every child thrills at the thought of speaking or singing through a microphone. Incidentally, this training is excellent, for out of the hundreds of thousands of possible members of local Junior Inspectors' Clubs throughout this country will come many who will speak later as authoritative citizens either into the microphones of broadcasting studios or into the microphones at banquet tables and convention platforms. The technique of speaking into a microphone today is very poor among most speakers.

It is hoped that municipal officials throughout the United States will recognize this opportunity of serving the coming generation, making them more truly conscious of their responsibilities as citizens, starting with the thought of "Cleaner and Safer Streets."

Trends in Municipal Recreation Administration

THE recent rapid increases in leisure and the growing public interest in and demand for recreation opportunities have emphasized the importance of recreation as a municipal function. The National Recreation Association is being asked more than ever before, not only by recreation workers but by other city officials, for information on such questions as: "What are the recent trends in the administration of local recreation programs?" "What form of administration has shown the most marked progress and has brought the greatest advances during the past decade?" "To what extent are schools assuming a major role in providing year-round community recreation programs?" "How has recreation fared during the depression under different types of managing authorities?"

In order to enable it to answer such questions, the Association has made two studies, one covering the period 1923-1933, and the other for the years 1928 and 1936. An article summarizing the findings of these studies appears in the January, 1938, issue of *Recreation*. Typical of the facts disclosed by the study are the following:

Between 1923 and 1933 the numbers of paid recreation leaders, playgrounds and indoor centers increased much more rapidly in cities with recreation boards than under other types of recreation agencies.

In the early depression years, 1930-1933, recreation boards made by far the best showing in maintaining appropriations for leadership and in the number of leaders, playgrounds and centers.

In 1933, 49 per cent of the city manager cities over 30,000 had year-round recreation programs, as compared with 42 per cent of the mayor-council and 37 per cent of the commission-governed cities; 40 per cent of the recreation agencies in city manager cities were recreation boards.

Many cities established year-round recreation programs between 1923 and 1928; since that time growth has been much slower and no marked changes have occurred in the local administration of recreation.

HOWARD BRAUCHER,
Secretary, National Recreation Association.

Heavy Chemical Treatment of Princeton, Indiana, Water

Highly Turbid River with Heavy Mine-Waste Pollution Converted to an Excellent Supply

CITIES with a moderately hard water from wells, or with impounded upland soft waters, do not half appreciate their blessings. In Princeton, Ind., the water is taken from the Patoka River, which drains a strip mine country which gives an acid water at times of moderately heavy rains. At all times the water is highly turbid, and the alkalinity is very variable, as are also the carbon dioxide and total hardness. With these variables to contend with, the Princeton Light and Water Co., with great thoroughness, has gone about furnishing a potable and palatable supply. An addition to the existing filtration plant was recently placed in commission with the latest equipment, and plans are now about ready for a complete overhauling of the pumping station, which suffered such damage from the flood of January, 1937.

The water in the Patoka River is pooled by a 6-foot dam just below the pumping station, but this was topped by 21.8 feet during the flood conditions, which lasted for twelve days. The only approach to the pumping station was by boat, and there was also a boat inside the station for use in case the sand-bag dams around the plant gave way. The men worked in rubber boots for the entire time. The water, which rose continually in the station, was pumped out by three tractors located on higher ground outside the station. When they lost their prime because the water got too low inside the pumping station, it was a job to regain the prime, and during that time the water rose rapidly inside and several times floated the oil out of the Sterling stand-by gas engine, so that it had to be stopped for a few minutes to clean out the crankcase and replace the oil. Otherwise it ran continuously for the twelve days of the flood, while the electric pumps were under water. The stand-by pump is an 1,800-gpm Dayton-Dowd centrifugal driven by a Sterling 8-cylinder, 300-hp gas engine with a 5¾-inch bore and a 6¾-inch stroke. It is a regular part of the plant equipment and was not put in just for the flood period.

Water from the river is pumped from a suction well fed by a tunnel running out into the river and requiring a 4-foot suction lift. The older low-lift pump located in a separate shaft is an Aurora 1,500-gpm centrifugal throttled down to 700-gpm and powered with a 30-hp General Electric motor. As a part of the plant improvements to come shortly, this pump is to be replaced by a smaller unit for greater economy, since the larger pump should never have been placed in this service. The second low-lift pump is in the pump station proper, and is another Aurora 1,800-gpm centrifugal with a 50-hp General Electric motor. This pump is used to capacity. The suctions on both low-lift pumps are 12-inch and run into the same suction well.

In the same pump station below the filtration plant are the high-lift pumps, consisting of a De Laval 1,400-gpm pump working against a 298-foot head and driven by a 150-hp G-E motor. The second is a Dayton-Dowd 1,800-gpm centrifugal with three stages, driven by a 250-hp G-E motor. This pump formerly handled the pumping for fires, but since the city has equipped the Fire Department with pumping engines, the high-pressure pump at the water works is not needed, so it is not used for regular pumping. It also is to be replaced in the program of improvement

THE NEW FILTER BUILDING AND THE CLEAR-WATER BASIN OF THE PRINCETON, IND., WATER WORKS

for pumping economy. Both high-lift pumps are equipped with electrically controlled Chapman cone valves which shut off the discharge pipe as soon the electricity is shut off. There is 11,300 feet of 12-inch cast iron main leading into the distribution system in the city, where a 175,000-gallon standpipe and a 400,000-gallon elevated steel tank float on the line.

The Filtration Plant

A 12-inch cast iron line leads from the low-lift pumps to the filter plant, where the water is discharged into the aerating box of a Vogt Aer-O-Mix. Between the box and the mixer of the Aer-O-Mix ammonia, alum and activated carbon are added to the water. Then lime and soda ash are added to the water as it flows over the baffle plate at the top of the Aer-O-Mix unit. This mixer is at the end of a mixing basin 42 feet long, 10 feet wide and 13 feet deep, in which the water is retained for 25 minutes and is stirred with three Dorr Flocculators driven by chains with a 5-hp G-E motor.

The water flows from the mixing basin through a 16-inch cast iron line to the old settling basin of the original plant. This is a concrete basin with brick baffles except for the first section, where thin concrete baffles are used. The basin holds 1.077 million gallons of water, giving a retention period of six hours. The settling basin is drained and washed every three months. At that time both storage tanks in the city are filled to insure against any lack of water in case of fire. The basin is drained through a 12-inch sewer emptying below the dam, and the entire operation of draining and cleaning requires only two hours.

The Filters

The original plant had four filters, but the reconstruction removed one of these units and enlarged the other three. The space left by the fourth filter is now used for the wash-water pump and the carbon dioxide furnace. The three filters are each 254 square feet in area and have a cast iron box manifold with cast iron 2-inch pipe laterals with 9/32-inch holes in the bottom for the flow of water. There is 14 inches of graded gravel and 30 inches of red filter sand. The wash-water troughs are of copper-bearing steel, with the tops 27 inches above the top of the sand. The wash-water pump is a Dean Hill 3,850-gpm unit driven by a 50-hp G-E motor. The filter runs are an average of 70 hours long, but are much shorter when the water is very muddy during the spring floods. Each filter is equipped with an Infilco loss-of-head gage and a rate-of-flow controller. All the cast iron specials for the plant were furnished by the American Cast Iron Pipe Co., and the valves by Chapman.

Chemical Treatment

Close to the end of the mixing channel, and over it, is a tank for the application of soda ash, which is added to the water at the rate of 400 pounds per million gallons when softening is used. Then on the floor over the mixing channel and adjacent to the Aer-O-Mix are the Wallace & Tiernan chlorinator and the ammoniator. The water is pre-chlorinated at the entrance end of the mixing basin at the rate of 3½ pounds per million gallons, and ammonia is added at the rate of 5 pounds per million gallons.

Three Wallace & Tiernan dry feed machines handle the lime, alum and Nuchar activated carbon. The alum and activated carbon are added to the water through a 2-inch cast iron line by means of an ejector, the alum being applied at about 70 pounds per mg during normal flows, and omitted during heavy mine flows. The activated carbon is added at 12 pounds normally, and 28 pounds per mg during mine flows. When the river is in flood and the mine flows are not proportionately heavy, the alum dose is raised to as high as 375 pounds per mg.

The lime is added at 200 pounds per mg normally, but this is raised to 400 pounds during mine flows. No carbon dioxide is used during normal flows, but during the mine flows and when softening is required it is applied at 5 to 8 ppm, and as high as 90 ppm during softening.

The carbon dioxide is made in an oil-burning Infilco recarbonating furnace and is pumped through a scrubber and applied to the settled water just before it enters the filters. The CO_2 is used only when there are heavy mine flows and when softening is required and the soda ash is applied.

The water is given a final chlorination of 3 pounds per mg just as it enters the 977,000-gallon open finished water pool, which is 17½ feet deep when full. A residual chlorine of 0.3 ppm is maintained in the finished water.

The variable chemical tests of the water during the month of August, 1937, show the care which must be exercised in the application of the various parts of the treatment for complete success. The alkalinity of the raw water varied from 8 to 28 ppm, the alkalinity of the finished water varied from 28 to 70, and the turbidity of the raw water from 90 to 2,500 ppm. The pH of the raw water varied from 3.8 to 6.8, and of the finished water from 8.8 to 9.9. The carbon dioxide in the raw water varied from 4 to 32 ppm, and in the finished water from zero to 2 ppm. The total hardness in the raw water ran from 150 to 400 ppm, while in the finished water it was uniformly 200 ppm.

The population of Princeton is about 8,000, and the daily consumption averages 800,000 gallons for the year, but the consumption ran up to 1,004,640 during the very hot weather in August, and also up to 1,092,000 gallons during the very cold weather of February, 1936. The plant is run 24 hours a day with no filter shut-downs. The delivery of water by the high-lift pumps is measured by a Republic meter, and the city is 75 per cent metered.

The plant is owned by the Princeton Lighting and Water Co. and is operated under the direction of Charles Hurst, Superintendent.

Interest on Public Deposits

***Whereas,* under the provisions of existing Federal law member banks of the Federal Reserve System are estopped from paying interest on demand deposits of all public authorities, and**

***Whereas,* this Federal inhibition conflicts with a number of state laws, and**

***Whereas,* the cities of the nation have hundreds of millions of dollars which can only be placed on *demand* as distinguished from *time* deposits,**

***Therefore, be it resolved,* that the United States Conference of Mayors petition the Congress to enact legislation amending the present Federal statutes in order that member banks of the Federal Reserve System may be authorized to pay interest on public demand deposits.**

—Adopted by the U. S. Conference of Mayors, in November, 1937.

Fitting Transit to the City

Peoria Integrates Transportation with the City Plan

By HARLAND BARTHOLOMEW
City Planner, St. Louis, Mo.

MUNICIPALITIES should recognize the importance of providing adequate local transportation facilities to assure an economical growth. Well-designed and efficiently-operated transit systems are necessary to the expansion of any city.

Lines, often incapable of self-support, have to be established as a matter of public convenience and to complete a unified system. The well-favored lines which are good revenue-producers must help to bear the cost of supplying transportation in the areas incapable of producing adequate monetary returns so that proper growth and development may not be retarded.

Peoria is favored by its unified urban transportation system, all lines being operated by the Illinois Power and Light Corporation. A single company supplying and operating all the transit lines is of the utmost importance to the economic welfare of the city. Any return to competitive systems would therefore be contrary to the best interests of the city, although this is sometimes advocated as a means of obtaining lower fare. The company has succeeded in acquiring and consolidating the individual bus lines which formerly operated within the city and which were supplementary rather than coordinated with the main transit system.

Even though the population has been steadily increasing, the number of revenue passengers has been gradually decreasing during the last decade, particularly toward the close of this period. This condition is found in the majority of American cities. It is undoubtedly due to the great increase in passenger automobiles.

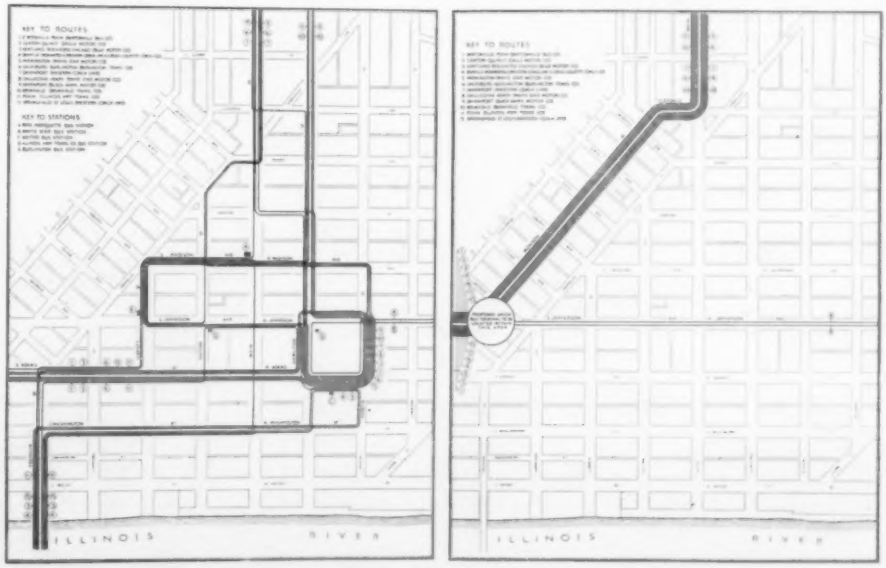
A continued decline in the riding habit is accompanied by a corresponding loss in revenue, which will prove a handicap to the transit company in providing satisfactory public transportation which the citizens have a right to expect. The continued expansion and growth of the city will necessitate new lines and extensions of existing lines, more equipment, and increased service. To properly balance these two factors, all possible steps must be taken to eliminate duplication of service, to develop new paying lines, and to improve service and equipment so as to recapture and retain patronage. Of these improvements, the transit plan is concerned only with the first two, namely, the arrangement and extension of transit lines so as to serve the city with a minimum of duplication and route mileage.

The combined area of Peoria, Peoria Heights, and East Peoria is 16.62 square miles. Of this area, 13.37 square miles is served and 3.29 square miles unserved. Of the unserved area, 0.70-square mile is used for parks, cemeteries, golf courses, and other semi-public uses. It is estimated that within the urban area including also West Peoria there are 115,000 persons and that 5,000, or 4.3 per cent, are unserved by transit facilities.

The company operates 26.58 street miles of car lines, and 21.9 street miles of bus lines. Certain streets are utilized by more than one route, and consequently the route miles operated exceed the street miles. There are 30.75 route miles of car lines and 23.8 route miles of bus lines.

Duplication of Service

One of the possible defects in any transit system is the duplication of service provided by the different lines. While apparently this affords convenience to the riding public, it can easily work to their disadvantage. To furnish this extra service, the company is required to maintain additional equipment where a lesser amount would probably collect the same income. The money that is expended to maintain any duplicated service could be more advan-



PEORIA PROPOSES TO ASSEMBLE THE THROUGH BUS ROUTES INTO DIRECT ENTRY AND EXIT

At left are the interurban bus routes as at present; at right is the City Planning Commission's proposal

tageously used in extending and improving equipment on a smaller number of well-placed lines.

Present Time Zones

The time necessary to travel from the central traffic district to various sections of the city is a good criterion of the service offered by the transit system. The majority of residents within Peoria can reach the central traffic district within fifteen minutes or less.

The riding public is always anxious to reach its destination in the least possible time, and, while the present speed within the city is reasonably good, the length of the routes will have to be increased as the city expands, and every effort should be made to increase the speed. It is primarily the duty of the transit company to provide faster service on the different lines by gradually providing more efficient methods of operation and equipment.

It is evident that electric railways in many of the smaller cities, and on lines where riding is light and under certain other conditions in larger cities, may eventually be supplanted by buses or other carriers. However, in the majority of cities of more than 100,000 population, the public carrier which is most likely to be maintained for the transportation of large numbers of people is the electric railway.

In view of the present economic condition of transit companies, large expenditures for new track and equipment are difficult to justify. Consequently, a workable transit plan should give consideration to the proper and economic use of existing facilities.

In Peoria two routing plans were prepared for the area beyond the central business district—the Ultimate Transit Plan and an Intermediate Plan. Both of these are designed to provide for the future transit needs of the city by means of an orderly and logical development.

There are certain general principles involved in the design of an adequate and efficient transit system. These principles have been followed in devising both the Ultimate and Intermediate Plans, and may be briefly stated as follows:

(a) Lines should be direct, continuous, and through routed whenever possible.

(b) Traffic should enter the business district in the direction from which it originates.

(c) Both portions of a through routed line should have similar characertistics especially concerning the number of passengers carried.

(d) Unnecessary duplication and overlapping of service is uneconomical and should be avoided. (The walking distance required to reach a transit line should not be over one-quarter of a mile.)

(e) Facilities should be provided for crosstown service outside of the central traffic district which will facilitate rapid communication between the various outlying districts and avoid the congested area.

(f) The type of service should be provided which has demonstrated that it best meets demands of public convenience. This provision indicates, and to a large extent governs, the type of vehicle—street car, trolley-bus, or motor-bus—to be used, and its time schedules.

The present arrangement of lines results in a large number of turning movements in the central area. As the city grows and the frequency of service is increased, these will become increasingly serious as traffic obstructions. Under the proposed re-routing, the whole operation in the central area will be simplified and, by eliminating the several loops, the number of turning movements will be materially reduced. Whereas there are now 512 turning movements during the maximum hour, there would be but 364 during the same period under the proposed re-routing.

Organizing the Interurban Bus Routes

Peoria is served by twelve interurban bus lines operated by ten different companies. These lines operate out of five separate terminal stations located in different parts of the central district and afford transportation to nearby communities as well as through service to a number of distant points. The diagrams show the present and proposed routing of each of the interurban bus lines outside of the central district. In general, the lines follow the direct routes and reach the central district with a minimum of turning movements.

Why Not Help the Tourist to Identify and Traverse Your Town?

THE American Automobile Association has recently published a study entitled "Americans on the Highway," which includes an interesting section on "Tourists' Preferences and Prejudices." One of the greatest bugaboos of travel is insufficient direction through the medium of street and highway signs. How often have you driven through a town, craning your neck in vain to find the post office or some building which might reveal the identity of the place? How often have you taken a detour which led you mercilessly astray in a labyrinth of back streets? Thoughtful signposting would relieve the tourist of such distressing situations. The name of the town might be included on the street sign, for example, in answer to the first difficulty mentioned.

Among "Tourists' Preferences and Prejudices" are listed suggestions by many tourists as to signpost needs:

"1. In many cities numbered routes are hard to follow because the highway numbers are placed at too infrequent intervals or are not well placed so that they can be seen clearly and easily.

"2. Poor markings at intersections. Frequently the turns are not well marked. Rarely is the motorist given advance warning of the turn of the numbered route.

"3. In country districts highway numbers are ofttimes too far apart and not properly placed. In some states, particularly in the West, one can drive for long distances without seeing a highway number, and this raises doubt in the motorist's mind as to whether he is on the right route.

"4. Too much confusion between state and national numbers. In many states highways carry both Federal and state numbers. It is not infrequent to observe a long series of numbers on a single standard.

"5. In many states the highway numbers are not well placed for night driving.

"6. More by-passes around cities to avoid congestion and decrease driving hazards.

"7. Small towns and villages should post their names at the highway entrance.

"8. Detours in some states are very poorly marked, and the traveler is shunted from the main highway and left to find his way back as best he can."

Among the states complimented for signposting were Ohio, Nebraska and Illinois.

This list might be taken seriously by a few of those states and cities we have bad dreams about.

Dallas Builds a New Traffic Artery

By ROBERT LEE STATEN

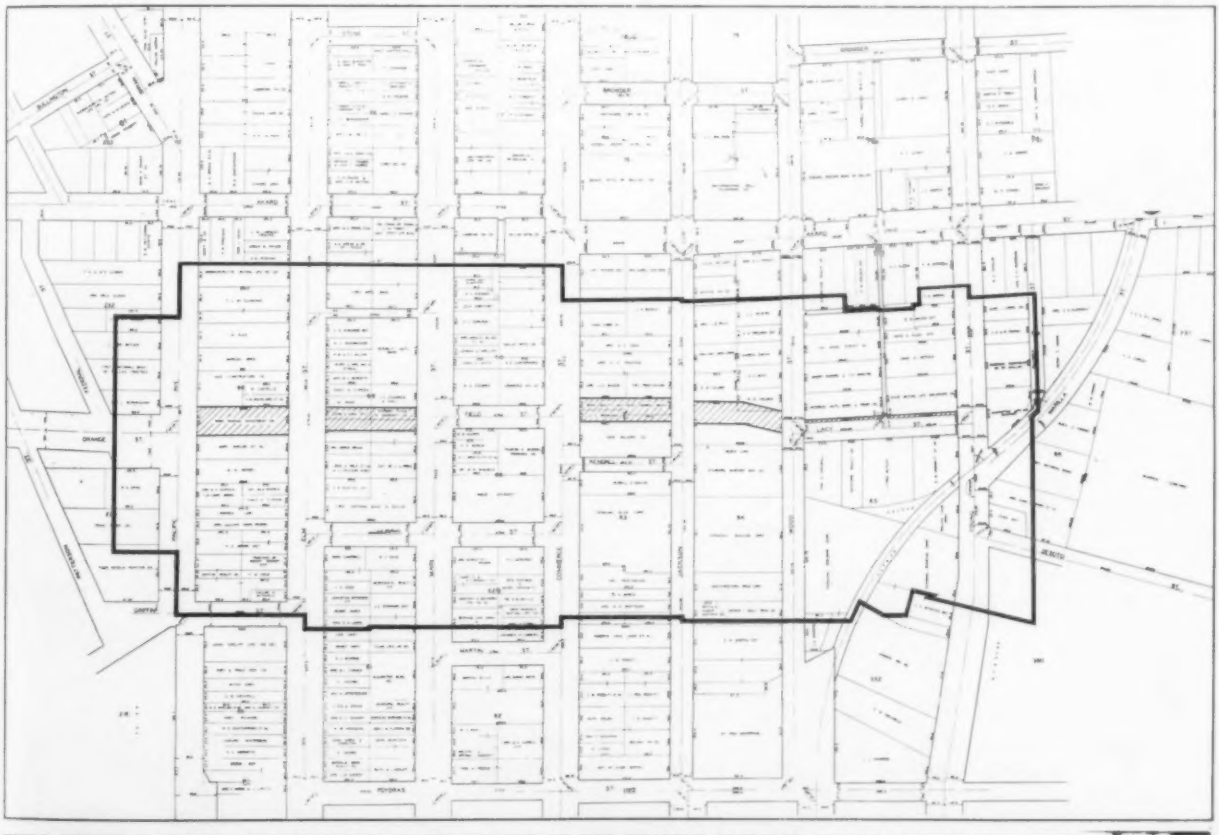
DALLAS is building a new traffic artery across the principal business thoroughfares of the city in the shadow of its bank and office buildings. It will correct a planning mistake of village days and by direct contact with existing streets provide easy touch with present populous residential areas.

For the purpose, property valued at $710,593.42 has recently been acquired under eminent domain. Buildings are now being razed. Five are to be wrecked entirely, and parts of eight more will be taken. To Dallas people, the project, which is known as the Field Street Opening, is unique, although, in the last decade, they have spent over six millions on street corrective work.

More than a quarter of a century ago Dallas began to make plans for a permanent and orderly municipal development. In a preliminary report of the engineer in charge it was said: "The streets of Dallas are the veins and arteries through which the life of the city must flow. Where the circulation is good, we find growth and vigor; where the circulation is bad, we find blight and dilapidation." Some years later, $200,000 out of a $23,900,000 bond issue for public improvements was set aside for Field Street, where "the circulation is bad," but where, as a result of this newly made street, it is believed there soon will be good circulation and consequent vigor and growth.

The Field Street Opening was opposed by some citizens who argued that any restoration of energy, if attained at all, could be brought about only by a more than equivalent loss elsewhere. Other opposition was made up largely of persons who had never had time to think the matter through, and a few active and successful but selfish men. However, when property owners in the district began to be confronted with vacancies and threatened vacancies or greatly lowered rentals, and when the assessor's office faced an unceasing demand for lower tax valuations, it became evident to thoughtful citizens that if the opening of Field Street accomplished nothing more than to stabilize values, it would be a worth-while thing to do.

Held up for sixteen years in the labyrinth of politics, Field Street finally, in the vernacular of Young America, "got a break." Urged by a committee of downtown property owners headed by Wirt Davis, Chairman of the Board, Republic National Bank, and including Temple Houston Morrow, President, Traders & General Insurance Co., Harry Meader, Manager, Mercantile Building, and Porter Lindsley, of the real estate firm of J. W. Lindsley & Co.,



FIELD STREET IS SHOWN APPROXIMATELY IN THE CENTER OF THE HEAVILY OUTLINED SPECIAL ASSESSMENT DISTRICT WITH ITS NEW EXTENSIONS IN EITHER DIRECTION CROSS-HATCHED

North and south run left and right

FIELD STREET, DALLAS, LOOKING SOUTH FROM MAIN TO COMMERCE, WITH DEMOLITION PROCEEDING BEYOND

the City Council passed a resolution ordering the institution of condemnation proceedings. The opposition then began to whisper it about that the act of the governing body was merely another political gesture. But it happened not to be so. T. L. Monagan, A. C. Moser and R. L. Staten were appointed by the Court as a Board to hear testimony on the value of the properties in the path of the proposed street and to lay out a benefit district and assess specially benefited properties. The Board began to hold hearings in June, and finished, both as to awards and assessments, in December of 1936.

The boundary lines of the specially benefited area, or, in other words, the places of zero special benefits, were approximately 300 feet east and west of Field Street. They were fixed by the Board at places where, in its opinion, local conditions formed barriers. Of the total cost, $436,901.05 was assessed by the Board to 282 property owners whose properties are in the determined specially benefited district. The amount of the assessment in each case was arrived at by the application inversely of factors indicative of distance from the newly created street. The deficit, $273,692.37, was charged, as a general benefit, to the city as a whole.

In Dallas, street corrective projects have been found to differ so greatly that erecting standards of procedure concerning the distribution of costs has been difficult. Many of those who have given thoughtful consideration to such work believe that fixed methods would hamper it. The Field Street Opening was accomplished by the application of a reasoned individual plan, painstakingly worked out in the light of competent and specialized testimony. Does real estate, like living things, grow to the point of maximum power and then decline, finally surrendering to the universal process, so to speak? Can the decline be arrested or former usefulness be restored by a great physical change such as a street opening? I believe so. It is often denied. In Dallas, at least, ocular proof will shortly be available, for where early-day speculators should have put a street but did not, Dallas is going to build one, at its very heart.

A Community Planning Advisory Service

By MILES L. COLEAN
Deputy Administrator, Federal Housing Administration

SOME two months ago the Federal Housing Administration announced that it was able to offer to city officials and groups of interested citizens a new advisory service dealing with certain phases of community planning. Already more than 50 cities have submitted requests for conference with the staff of the Land Planning Section, and the Administration has been able to give assistance in many cases.

It appears, from the requests which are being received, that the exact nature of the service offered is not understood fully in many quarters. Many groups are requesting more assistance than the Administration is prepared to give, both because of the limits of its activities and because of the small size of its staff.

The service which the Administration is making available is largely advisory or informational in character. It is concerned primarily with those communities which lack the protection provided by a proper city plan, zoning ordinances and subdivision control regulations.

No attempt will be made to provide communities with model city plans, with zoning ordinances or subdivision control measures. The detailed research and drafting work entailed in the drafting of such codes and plans is no part of the service, and the limited staff of the Land Planning Section would be entirely inadequate to cope with such a volume of work.

It is the policy of the Administration, however, to meet with city officials and interested citizens and to point out the type of control which is desirable. It will point out the need for carefully prepared studies to serve as a basis for adequate control legislation. The Administration will also point out the desirability of securing the services of technically trained men to draft zoning and subdivision-control ordinances and draw up an adequate city plan. It will indicate where such service can be obtained.

Planning consultants of the Administration will be in the field for a large part of the time, and every endeavor will be made to arrange conferences with groups interested in taking advantage of the service. Requests for consultations must be made well in advance, of course, so that consultants may be routed throughout the country in the most efficient manner. It should also be remembered that the assistance necessary can be provided by correspondence, in many cases.

In making available this service, the Administration feels that it is not only contributing materially to the future success of its own program, but is making a definite contribution to the stability of the real estate and mortgage structure of the country.

Three years of operation of the Insured Mortgage System have demonstrated to the Administration that many of our cities and towns lack the protection of adequate planning and zoning ordinances. It has also become evident that many city officials and many members of the mortgage lending and real estate industries fail to realize the need for control measures.

The Federal Housing Administration is convinced that mortgages are only as sound as the weakest link in the mortgage transaction, and in all too many cases the character of the neighborhood has proved to be the least desirable element in the transaction. The Administration will therefore continue to stress the necessity for community planning and for the establishment of adequate zoning, subdivision-control and community-planning measures.

Hammond Enlarges Sewage Works

WPA Projects Add New Imhoff Tank and Double Trickling Filter Area

WITH general repairs needed to its old Imhoff tank and sprinkling filter installation, Hammond, La., (population 6,072) planned a WPA project to double the size of the plant and thus prepare for the future, and make possible repairs to the existing plant and provide a better effluent to the canal. Hammond is located 44 miles east of the state capital, Baton Rouge, and is known as the Strawberry Capital of America. As in many other southern cities, the sewage effluent flows into a small canal used for drainage purposes, and except in times of heavy rainfall the entire flow of the canal is the flow from the treatment plant.

The original treatment plant consisted of a small Imhoff tank and sprinkling filter installation. The baffles had broken and cracked, and the influent pipe had leaked for some time. The city decided upon using the improvement of its sewage works as a relief project and applied for WPA aid. This was accorded and permitted the installation of the new Imhoff tank, slightly larger than the old, and a new section to the sprinkling filter. The old filter was 75 x 60 feet, and the addition is 75 feet square. There are 42 nozzles in each section, with the spacing uniformly 10 feet on centers in the old section and staggered in the new. The gravel of the old section was somewhat clogged, so that some pooling was evident on the surface. As soon as the underdrains were completed in the new section, the gravel was overhauled and thoroughly washed and transferred to the new section, where the laterals for the sewage are all laid at the top of the bed. New gravel was placed in the old section. The old and new filters have 6 and 8 feet of gravel respectively, and are both equipped with Taylor nozzles.

The sewage flows from the city by gravity, and is lifted by one of two Wood sewage pumps to the Imhoff tanks. The pumps are controlled by a float switch which starts the pump as soon as the sewage rises 6 feet in the sump. The flow to the trickling filters is somewhat equalized by the dosing tank, which holds less than the average delivery of the lift pumps. The trunk line to the plant is 24-inch vitrified tile except for one short section in quicksand, where 20-inch cast iron pipe was used to replace the tile.

THE NEW IMHOFF TANK OF THE HAMMOND SEWAGE WORKS

The present control of the plant is by a new set of M&H gate-valves, with one controlling the flow to the old Imhoff tank and two on the new tank permitting the reversal of flow. Also, the withdrawal of sludge from the new tank is controlled by a pair of M&H valves on lines running to the two sections of the sludge chamber.

The underdrains of the sprinkling filters consist of half-tile laterals leading to a 1 x 1-foot concrete drain which enlarges to a 2 x 2-foot drain at the outlet end. A cast iron line delivers the effluent to the canal. Some difficulties over the easement made it necessary to lay a new effluent line at a slight distance from the old when the second Imhoff tank and sprinkling filter installation was made.

The work was done under the direction of H. P. Mitchell, Mayor, with James M. Fourmy as consulting engineer. John W. Wascom is superintendent of the sewage-treatment plant and the nearby city dumps. The new treatment plant and renovating the old cost $41,500. The Federal Government supplied labor and material at a cost of $35,107, and the city paid the balance.

THE NEW SPRINKLING FILTER IN OPERATION

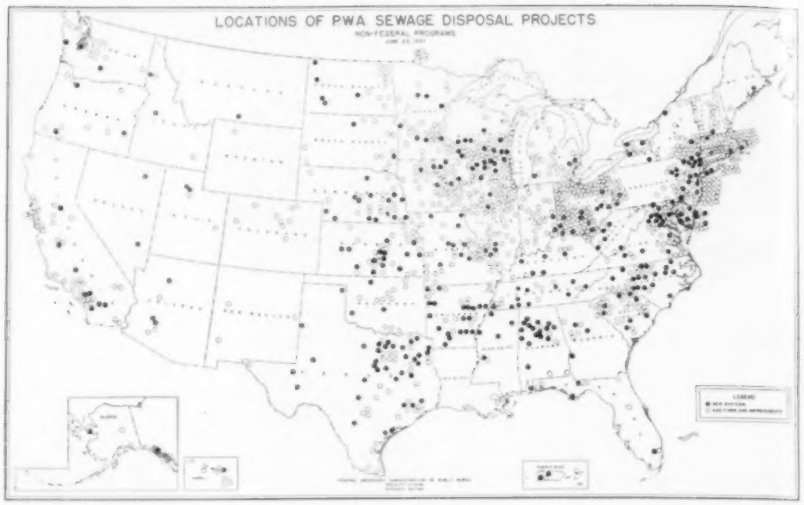
The old filter in the foreground was inoperative when this photograph was taken

$400,000,000 in Sewers Built with PWA Aid

THE Public Works Administration during its past 4½ years of existence, has made possible approximately four-fifths of all the sewer construction during that period in the United States by building over 1,100 sewers at a total cost of nearly $400,000,000. When the construction of sewage-disposal systems fell from $100,000,000 in 1928 to $22,000,000 in 1932, PWA came to the rescue and made it possible for construction to increase to $61,000,000 in 1934, $100,000,000 in 1935, and $121,000,000 in 1936.

According to a nation-wide survey of sewage-disposal facilities, less than one-third of the urban population was served by sewage-treatment plants in 1934. After its study, based upon data provided by state sanitary engineers, the Project Division of PWA found that in 1934 the population served by sanitary sewers totaled 61,000,000. Of this number, 22,000,000 persons were served by the 3,697 sewage-treatment plants then in operation. Under the PWA program, more than 700 new sewage-treatment plants were constructed. Many of these served communities which had sewers or treatment plants, but whose treatment facilities were inadequate. Complete new systems, including treatment plants, were completed in 317 communities. The estimated cost of these projects, serving a population of 670,000, is $25,873,070.

The accompanying map shows the location of PWA sewage-disposal projects outside of programs of other Federal departments. The black dots indicate new systems, and the circles indicate additions and improvements to existing facilities.



Bronze Welding Used at Sewage Works

SIX hydraulic cylinders and two pump heads which had been damaged by freezing were successfully repaired by bronze-welding at a saving of more than $700 at a northern plant last spring. During the construction of the plant in the spring of 1937, tests were made on a number of hydraulic pumps which operated the sluice-gates. The pumps are located just above the gates and are of the double-acting type, pressure being used both to open and to close the gate.

Following the tests, the water was not drained from the cylinders, and an unexpected cold spell, together with the fact that the partially completed building did not adequately protect the pumps, caused the water to freeze. Six cylinders and two heads were damaged, one of the cylinders so badly that its entire length was fractured.

Each of the cylinders is approximately 13 inches in diameter and 8 feet in length, with flanged ends bolted to the heads. The cylinders are made of cast iron with a 3/32-inch thick bronze liner.

The damaged cylinders were removed and bronze-welded in accordance with the recommendations of an oxy-acetylene welder. The cost of welding, including labor and materials, amounted to $584.

Patented Sewage Process Demonstrated at Davidson, N. C.

A NEW patented process of sewage treatment, based on the fundamental principles of the George H. Roeder bio-reduction patent, has been placed in practical operation in a plant constructed at Davidson, N. C. The plant combines complete treatment of the water in two hours, with stabilization of the solids in ten days. The city of Davidson has contracted to sell the entire solid output to a manufacturer for use in a fertilizer mixture.

According to Prof. W. D. Turner of Columbia University, two hours after the raw sewage has first entered the plant, it is ready to be discharged into the outlet, with 90 per cent or more of the total impurities removed and with substantially all bacteria eliminated. This means that a given land area and tank capacity can handle three times as much sewage by the new patented process as by the activated sludge process. The impurities which are removed from the sewage are put through a stabilizing process whereby the animal residues are converted to a vegetable-like residue. In this new bio-reduction process the stabilization is completed in ten days because the organic matter which is grown is microscopic, of the order of size of yeast cells, which grow and multiply very rapidly.

Prof. Turner further states that the short time required for this process may be compared with the present sludge digestion process, which necessitates from 90 to 120 days for its completion, and which is therefore too costly to be adaptable in any community when the sludge may be directly disposed of without stabilization. The plant has received the approval of the North Carolina Department of Health.

Commission Designates Interstate Waters to Be Freed of Pollution

THE Interstate Sanitation Commission of the states of New York and New Jersey has already designated certain waters along the south shore of Long Island, lower New York Bay, Raritan and Sandy Hook Bays as Class "A" waters. The Commission's ruling, if made permanent, as it is expected it will be, requires that all sewage dumped into these water areas must receive a high degree of treatment to insure elimination of pollution.

The action of the Commission was taken on the recommendation of Seth G. Hess, Chief Engineer, following a series of public hearings held during the past summer. So far as the areas classified by the Commission's ruling, there was practically unanimous agreement by civic bodies, public officials and taxpayers that the waters should be kept in a state of purity necessary to permit bathing as well as the propagation of shellfish.

As rapidly as possible, additional water areas lying within the Sanitation District will be classified. Findings of the Commission are transmitted to the existing health agencies in New York, New Jersey and also Connecticut.

The New Water Supply of Little Rock, Arkansas

Sixty Years of Hard Water to End in 1938

SINCE 1878 the city of Little Rock has used Arkansas River water with treatment, and augmented by a well supply since 1915, but early in 1938 it will have the advantages of a soft surface supply from a mountain stream 33 miles west of the city. An analysis of the present supply after softening and as delivered to the consumers, compared with the water to be impounded by the new dam, shows the great advantages which will accrue to the capital city of Arkansas with the advent of the new supply.

	Filtered Water	New Supply
	(All figures in p.p.m.)	
Silica	6.9	1.40
Iron and aluminum oxides	0.0	0.25
Calcium	54.5	2.40
Magnesium	6.7	1.95
Sodium and potassium	48.4	5.75
Bicarbonate	54.0	7.32
Sulphate	33.5	14.35
Chloride	356.0	4.0
Carbonate	6.0	0.0
Nitrate	0.0	0.0
Carbonate hardness	69.0	6.0
Non-carbonate hardness	141.0	8.0
Total hardness	184.0	14.0
Total dissolved solids	327.0	28.6

(The chloride and hardness results in the filtered water are yearly averages. The sample for the new water supply was taken from the Alum Fork River in April, 1936, before the construction of the impounding reservoir.)

Greater Little Rock, which includes North Little Rock, has a population of 118,000 and is the geographical and political center of Arkansas, serving also as its commercial, financial and industrial center. The water works were privately owned until April, 1936, when they were purchased by the city for $3,850,000 through the sale of 4 per cent revenue bonds maturing over a period of 40 years. Immediately after acquiring the water works the city set about securing PWA assistance for the creation of a new impounded supply financed through another issue of 4 per cent revenue bonds. The financial statement of the Water Department shows that there is a fair profit of 10.9 cents per 1,000 gallons at the existing rates for the carrying and funding of the revenue bonds.

The first construction contract for the new $3,500,000 project was awarded June 16, 1936, to the Lock Joint Pipe Co. for the 32.4 miles of 39-inch diameter steel cylinder reinforced concrete pipe to carry the water from the dam site to the filtration plant in the western portion of the city. The pipe was all manufactured in Little Rock, using local labor, and the installation and testing of the pipe line were completed in August, 1937. The installation of the pipe line required the construction of two tunnels, 1,525 and 1,068.4 feet respectively, and the excavation of a continuous trench for the remainder of the distance from the dam to the plant. More than 50 per cent of the trench was in rock. The transportation of the 16-foot sections of pipe, weighing 8,100 pounds each, was a serious problem over the terrain through which the line ran. High-wheeled buggies similar to logging trucks were used successfully. The pipe was all bell-and-spigot with a rubber gasket joint. The maximum capacity of the pipe line is 25 million gallons daily.

The Alum Fork Dam

The second contract was for the Alum Fork impounding dam, an earth fill structure containing 1,500,000 cubic yards of selected earth and reaching to a maximum height of 115 feet. The base of the dam is 600 feet wide and the top 20 feet. The dam when completed will be 2,400 feet long exclusive of the spillway, and will impound 14 billion gallons of water at spillway elevation, of which 11 billion gallons will be usable storage. The drainage area contributary to the reservoir is 43.5 square miles. The reservoir itself will have an area of 1,290 acres and a shore line of 12 miles. The engineers compute the safe net annual yield of the watershed to be 10 billion gallons with the storage provided, while the present annual demand of the city of Little Rock and North Little Rock, which is supplied by the former city, is only 2½ billion gallons.

The safety of the structure is assured by the careful selection of the materials in its construction, the upstream and downstream slopes varying from 2½ to 1 to 1.8 to 1 on the downstream side with two 10-foot berms, and 2¾ to 1 to 2 to 1 on the upstream side, with two 10-foot berms and riprap for the entire upstream face. The 300-foot spillway of concrete is capable of passing a flood of 225,000 gallons per second, and has a paved apron both upstream and downstream. The elevation of the top of the dam is 15 feet above the elevation of the spillway, 740 feet. The normal water elevation in the reservoir will be between 738 and 740 feet with a low-water elevation of about 725 feet. The filter plant receiving basin is 228 feet below the normal elevation of the surface of the reservoir.

New Filtration Plant

Not satisfied with just a new supply, the city of Little Rock is adding to its filtration equipment a new 8,000,000-gallon capacity filtration plant on the south slope of Water Works Hill overlooking the present plant. It will include complete automatic regulation of chemical feed, the latest methods of feeding and mixing the chemicals, and centralized control of all operations. The plant will be housed in a modern three-story brick and reinforced concrete structure.

A Safety Measure

Even though it has constructed a dam with all the safety factor that twentieth century engineering can provide and a modern pipe line of the most lasting type for the purpose, it was deemed advisable to provide additional storage

facilities for the city close at hand in case there should be trouble from some unknown cause between the source and the city. This led to the inclusion in the construction program of a 92,000,000-gallon emergency reservoir 1½ miles from the city limits. The earth dam for this reservoir is being built with the same care in selection of materials through the use of the latest tests known to the student of soil mechanics. The dam is 1,700 feet long, 65 feet high at its maximum elevation, 325 feet wide at the bottom, and 20 feet wide at the top. The reservoir will be 20 acres in area and will float on the line with the provision of certain safety devices so that it cannot be overflowed. The water in the reservoir will be 30 feet above the elevation of the receiving basin in the filtration plant.

Personnel

Burns and McDonnell Engineering Co. of Kansas City, Mo., are the consulting engineers for the city of Little Rock in the design and supervision of the construction of the new water-supply project, which is Arkansas PWA Project 1106. The financing of the project was in charge of the Finance Committee of the Board of Aldermen, Henry G. Leiser, Chairman, and of which R. E. Overman, Mayor, is the presiding officer. L. A. Jackson is Manager of the Water Department in charge of operation. M. L. Crist was Resident Engineer for the Burns and McDonnell Engineering Company during the construction of the new supply project.

Incinerator Surrounded by a Park

Jackson Has a City Park for a Half-Mile from Water Works to Incinerator

SET among flowers and trees at the end of a long pond formed by the overflow of wells in the city waterworks grounds, is the municipal incinerator of the city of Jackson, Tenn. It is on the edge of town on the main highway from the south and where it can be seen by all passersby. The location has been occupied by a Nye incinerator for over 23 years; the first plant was on the site for twenty years, and this, the second, for three years. In the old days there was an 18-foot depression in front of the incinerator that was famed as a fishing hole, but an accumulation of non-combustible tins and automobile junk filled the hole, and today it is the center of a flower-bed and circle for cars to use in turning after driving the length of the parks laid out by these two city departments.

The incinerator, housed in a neat brick building, has a ramp leading up one side for the loaded trucks and wagons, and a similar ramp down the other side for exit, both bordered with flowers in season and shrubs at all times. The capacity is 60 tons per 24 hours, but it has never been called upon to carry such a load, although it has been pressed hard for a few hours when certain sanitary measures were passed a couple of years ago. Fearing an epidemic of rabies among the animals of the district, the city issued an order that all loose animals would be shot on sight. This produced in one day the carcasses of five mules, three cows and forty dogs to be burned. On this day alone in the history of the plant was any additional fuel used. A half-ton of coal was required to boost the fires with the aid of the Sturtevant blower to consume the heavy load.

There is one charging hole on the upper floor through which all material to be burned is fed. All non-combustible refuse is salvaged from the material as it is dumped on the charging floor, and is cast aside to be hauled away to a dump or for fill at the end of the day. On the stoking floor there are four doors in the main furnace for stoking and one in the combustion chamber. The plant is operated from 7:00 in the morning to 5:00 in the afternoon, when the last loads of refuse are usually delivered. If any arrive after that time, they are dumped on the charging floor and are burned the first thing in the morning.

Municipal collection of garbage and refuse is made twice a week in the residential section and daily in the business and hotel section. The collection equipment for this city of 25,000 consists of a single Chevrolet truck and a two-mule wagon. This is sufficient, for the hauls are not long. The average amount of refuse delivered to the incinerator daily is about 10 tons—not a guess, since the refuse is weighed for a day at a time periodically to check the amount. The furnace is cleaned daily of all clinker and tin cans which have accumulated in the chamber and on the grates.

The plant is operated by two men under the supervision of T. R. Boxley, Sanitary Inspector, directed by J. L. Harris, Commissioner of Health.

THE 60-TON INCINERATOR AT JACKSON, TENN.

Delinquent Tax Drive Yields More Than $600,000 in One Ohio County

Similar Campaigns to Be Conducted Elsewhere

By WALLACE ROBERTS

THE theory that nothing can be done toward collecting delinquent real estate taxes; that "delinquencies" result from economic conditions, and that any tax drive would be political suicide. proved just another myth when put to a test in Butler County, Ohio.

Less than eighteen months ago, Butler officials, confronted with financial difficulties because numerous property owners had "neglected" to pay taxes, launched a campaign that has reduced by more than one-third the $1,738,499 carried on the books early in 1936 and has brought tax reductions in the current year to 30 of the 57 taxing districts.

Besides netting $627,819, the drive made the public tax-conscious to the extent that only 8 per cent of the last current tax bills remained unpaid, compared to between 15 and 32 per cent in former years. The $627,819, combined with the increase in current collections, saved the schools and local government from collapse and permitted the county to pay off a deficit of $36,218 existing in the general fund in 1935 and to finish the year with a balance of more than $15,000 in that fund.

The drive met with public approbation, as was amply demonstrated when one of the officials prominently identified with the campaign won renomination by a landslide over three opponents in the recent primary. He carried 127 of the 186 county precincts, despite an active campaign on the part of two of his opponents.

The success of the drive attracted favorable attention in the Ohio General Assembly which summoned Butler officials to Columbus to relate details of the campaign. The solons were so impressed that a bill was enacted making similar campaigns virtually mandatory throughout the state.

Starting the Drive

W. K. Swan, County Auditor, paved the way for the drive when he ordered publication of the list of property owners who had permitted their bills to become delinquent. Mere announcement of his intention resulted in a rush to pay by those who desired to avoid publicity, and more than $200,000 was checked off before actual publication was made.

The list revealed tax claims against 27,751 pieces of property, the amounts ranging from $5 upward. The total included listings of real estate development companies, several holding title to as many as 500 pieces of unimproved property from the boom days of subdivision developments. The list filled 22 standard newspaper pages and provided the public with "choice" reading material for several days.

Publication was made in two daily newspapers. Immediately, property owners who had paid regularly raised a clamor that something be done to collect from others equally able to pay. During the next few days, county officials were besieged with letters and telephone calls from indignant citizens who declared that unless efforts were made to collect the money, they would refuse to pay future bills.

OFFICE OF
THE PROSECUTING ATTORNEY
BUTLER COUNTY
DELINQUENT TAX DIVISION
HAMILTON, OHIO

Dear Sir:

Your Name has been referred to this department as owning property on which the taxes or assessments or both have been certified delinquent. As you probably know, these taxes constitute the first lien on your property and it is the duty of the county officials to enforce this lien.

These officials have no desire to take any drastic action if this debt can be paid in any other way. We are enclosing herewith a summary of the ways in which delinquent and current taxes can be paid. Please read it over and acquaint yourself with its contents.

If you call at this office, we will be glad to talk with you about these taxes and explain these methods in more detail and we will try to help you work out your individual problems and determine your reasons for non-payment.

If we hear nothing from you within two weeks, we will assume that you have no interest in this matter and will take such action as we deem necessary.

Very truly yours,

PAUL A. BADEN
Prosecuting Attorney,
Butler County, Ohio.

Encouraged by public opinion, Auditor Swan summoned Paul Baden, County Prosecutor, and Joseph DuBois, County Treasurer, into conference to map plans for a county-wide tax drive. He revealed that tax delinquencies during the past 25 years had soared from $18,381 to $1,738,499 and that some property owners had not paid for more than two decades.

Mr. Swan declared that failure to force payment worked a hardship on property owners who paid their bills, for the latter were compelled to pay added amounts in order that schools and local governments might obtain sufficient money for operating expenses. He produced records showing that one property owner, apparently financially able to pay, owed $26,000, and that several others owed amounts ranging above the $1,000 mark.

The situation, he pointed out, was not entirely the outgrowth of the depression, for in the boom years from 1919 to 1929 the amount carried on the books had increased $503,083.69. The amount remaining unpaid on January 1, 1936, he declared, was practically the equivalent of the sum assessed for a full year, and collection of a sizable portion would make it possible to reduce the tax rate.

The County Auditor's figures, certified by R. H. Smith,

then State Examiner attached to the Butler County district, revealed the following amounts carried forward in each of the years between 1911 and the end of 1935:

1911....	$ 18,381.99	1924....	164,842.58
1912....	18,796.70	1925....	229,292.75
1913....	31,334.53	1926....	262,790.67
1914....	45,546.66	1927....	177,758.10
1915....	27,381.26	1928....	344,155.43
1916....	25,381.21	1929....	$ 538,292.57
1917....	25,679.11	1930....	577,564.89
1918....	30,282.95	1931....	1,021,974.84
1919....	35,208.67	1932....	1,267,987.06
1920....	$ 48,981.21	1933....	1,426,342.21
1921....	79,191.78	1934....	1,567,467.29
1922....	94,175.91	1935....	1,738,499.88
1923....	128,810.88		

County Prosecutor Takes a Hand

The conference resulted in immediate arrangements to have the Prosecutor notify all property owners whose bills had remained unpaid for three years or longer to appear in person and explain their failure to pay. The Prosecutor was empowered to use his own judgment in handling the situation, and was assured support if he decided to institute foreclosure suits.

A special tax office, manned by the Prosecutor and his two assistants, Marc Fiehrer and Jack Bosch, was established in the courthouse at Hamilton, and the County Commissioners appropriated $250 to finance the purchase of supplies. Later, branch offices were opened in Middletown and Oxford for the convenience of property owners residing in those districts.

A typical form letter, printed on the Prosecutor's office stationery, was prepared, and the first group of fifty was placed in the mails early in April, 1936. Each property owner was notified to appear at the tax office within two weeks after receipt of the letter, and those who failed to comply received another letter much firmer in tone than the first.

In addition to this second letter, here reproduced, each property owner was sent a folder containing a section of the Ohio law regarding seizure of property for tax claims, and information relative to the payment of back-due taxes on the installment plan. Property owners were requested to read the folder and to make some sort of a tax payment within the two-week period.

How Individual Cases Were Handled

A separate card was then made out for each "account" as the letters were mailed and these were filed in alphabetical order. On these the following information was called for:

Name of owner and address: Age: Date of letter:
Description of property: Name of spouse:
Taxes: Assessments: For how long?
First mortgage? Amount: Tax value: Annual tax:
Second mortgage? Amount: To whom?
Are you paying on these mortgages? To whom?
Any other liens — judgments? How much?
Owner's estimate of value?
Is owner working? Where?
If not, how long since he worked? Monthly income?
Does owner live in this house? Where?
Income per month? Rented?
Does owner own other property?
Can owner make installment payments?
If so, when? Why not?
Date of first consultation:
Date of second consultation: Referred to:

Does the owner show a disposition to keep the property and work out the taxes?
Will mortgagee increase the loan to pay taxes?

As each property owner called for his or her interview, the card was removed from the file and information obtained was written on the reverse side while the interview was in progress.

The necessity of furnishing information of a personal nature had the moral effect of causing the majority to make some sort of payment immediately, although no threat of notifying employers or business associates was made. Persons whose property was mortgaged were told, however, that the mortgage holder could foreclose on a tax lien, and those few who assumed a hostile attitude were warned that mortgage holders would be informed of the tax claim. Persons who were able to produce proof of unemployment, or other adverse conditions beyond their control, were given a six months' grace period and told to report back at the end of that time.

Only 18 of the persons interviewed refused outright to pay their bills, either in full or part, and less than 10 per cent furnished proof that they were financially unable to make at least a payment. Foreclosure suits were immediately filed against the 18, and to date 14 of the properties have been disposed of at sheriff's sales.

In the first 60 days of the campaign, an average of $3,500 a day was collected at the Treasurer's office, due in part to the fact that many property owners, not desiring a "session with the Prosecutor," called there direct to pay their back-due bills. Within a few months, the $500,000 mark had been reached, and slightly more than $100,000 has been added to the total since the close of the last current collection period.

During the first few weeks, daily conferences were held by the Prosecutor, Treasurer and Auditor, and a careful check was maintained to see that all those who promised to pay fulfilled the agreement. Records were checked at the end of each day, and property owners who "forgot" to pay were sent stern reminders by the Prosecutor. About 75 per cent, it was found, came prepared to make some sort of payment and took care of that detail while at the courthouse. The others designated some definite date, such as "10 or 30 days from now" and paid as promised.

Exactly 2,567 property owners signed contracts to liquidate their bills on the installment plan within six months after the drive opened, and each made a down payment of at least 10 per cent. The amounts involved in the installment pacts, according to Treasurer DuBois, ranged from $52 to $22,687.

Building-Loan Associations Help

As the drive gained impetus, representatives of all building associations in the county were summoned to a conference at the courthouse and urged to make loans for tax purposes to persons upon whose property they held mortgages. The suggestion met with prompt response, and several hundred property owners were advanced money and permitted to repay it in small sums.

A further reduction in the delinquent list was effected through seizure of numerous properties upon which the amount of delinquent taxes exceeded the valuation. These properties, consisting almost entirely of vacant lots of doubtful value, were placed on sale recently for the amount of the tax claims. Properties upon which bids did not equal or exceed the tax claims will be re-offered at a future date for any amount they will bring.

The tax drive, which has brought inquiries from public officials, chambers of commerce and tax groups in 14

states, cost the county less than $10,000, including the legal publication, postage and miscellaneous items. The "investment" has yielded a return of more than $60 for each dollar expended, in addition to bringing in a larger percentage of current taxes.

Legislation Authorizes Installment Payments of Delinquent Taxes

The success of the campaign was due in part to action previously taken by the Ohio General Assembly in approving a bill permitting property owners to liquidate delinquent bills over a period of five years. All penalties were ordered stricken from the bills liquidated in that manner, but 4 per cent interest was charged against the unpaid balance.

The bill, known as the Whittmore Act, makes it possible for property owners in Ohio to block any effort to foreclose on their property for tax liens by making an initial payment of 10 per cent on their bills. The balance is to be liquidated over a period of five years, with a payment of 10 per cent in each of four years, and the balance at the end of the fifth year in one lump sum. Since the original bill was enacted, a change has been made whereby property owners are given a full ten years to liquidate on the basis of 10 per cent a year. Although the bill expires in the near future, Butler officials have indicated they will arrange to continue to accept installment payments until all back-due bills are liquidated.

Political Reactions Favorable

The political reaction to the campaign has been watched closely by officials in other localities, and the vote totals in the 1936 primary race have been scanned carefully by politicians who have previously been inclined to believe that tax campaigns were "loaded with dynamite." That the opposite is true is indicated in Butler County by the mounting belief that although Auditor Swan is a Republican officer-holder in a strong Democratic county, he will virtually be drafted to seek another term.

The property owners who paid on schedule are highly elated over the fact that 30 of the 57 taxing districts have lower tax rates, and that prospects exist for a further general reduction. The only districts having higher rates are those in which school bonds were issued to finance WPA work.

The "delinquents," instead of becoming antagonistic toward the officials, have become boosters, owing to the realization that they would have been compelled to pay sooner or later and the installment plan made it easier for them to liquidate the indebtedness. In addition, both classes are gratified that the tax drive centered attention on real estate activities in the county and contributed much toward booming the market.

Billboards and Esthetic Standards

THE accompanying photograph shows results in Earley, Berkshire, England, of the efforts of the Scapa Society for Prevention of Disfigurement in Town and Country. Under the English Advertisements Regulation Acts and the Town and Country Planning Act, local authorities have been making continuous progress in the control of outdoor advertising. These acts do not prohibit the exhibition of advertisements generally, but give power to remove them if they disfigure a view of rural scenery, or seriously injure the amenities of land protected in a planning scheme. That is to say, every advertisement must be considered in relation to the setting in which it is exhibited, and an opinion formed as to whether or not it is injurious to the amenities of its surroundings. This reference to esthetic standards makes the regulation difficult.

Nevertheless, all County Councils have now made by-laws under the Advertisements Regulation Acts, covering the whole of the rural districts and also those urban districts the population of which does not exceed 10,000. The urban counterpart of the problem is being met through the planning schemes, which under the Town and Country Planning Act normally contain a clause under Section 47 of the Act, providing for the control of outdoor advertisements by the "responsible authority." The common practice is to specify certain "use zones," e.g., the residential, commercial, agricultural or industrial areas, in the scheme as "protected in respect of advertisements." When this is done, if an advertisement exhibited anywhere on land to which the scheme applies "seriously injures the amenity" of protected land (but not otherwise), the responsible authorities can require its removal, and on non-compliance can remove it themselves. The exhibitor of the advertisement has a right of appeal to a court of summary jurisdiction.

1936

The same site in

1937

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Metered Parking Safe and Efficient

By A. E. DOWELL
Chief of Police, Fort Worth, Texas

GES

SING

NG AND COLLECTING AT FORT WORTH, TEXAS

of the traffic patrolmen, particularly the motorcycle
ie status quo of say, 1931.

elect your most congested districts, and do not undertake to meter beyond the limits of the present congestion. This will permit those who fight the meter to park just outside the metered area. You will most likely find that those who opposed the meter soon learn the purpose of the meter.

"Another feature is the one- and two-hour meters. We find that the two-hour meters just outside the heavy-congested district are more freely used as a sentinel meter than a one-hour meter. I feel that in the beginning the one-hour meter should be set at from 10 to 15 minutes' grace. This can be done with either one- or two-hour meters, or even with the 20-minute meters, and allows the patrons that much more time to adjust themselves to a safe return and the removal of their vehicles before a ticket is given. This will keep down many controversies in the traffic court until matters are more evenly adjusted in favor of the meters."

In conclusion, I repeat what I said after seeing the results of a fair trial of this system of regulating parking:

"I think that the parking meter is one of the most forward steps in traffic engineering since the installation of traffic-signal lights. There is no question but that the parking meter is not only a money-maker but a distinct help in handling traffic."

and to Oliver S. Morris, City Editor of the *Seattle Post Intelligencer*, we wrote as follows:

"The approval of the installation of parking meters is a matter of education of the people involved, including the public, the city officials, the police officials, and the merchants. Upon installation, the meters gradually sell themselves on merit; to the motoring public, because of improved parking facilities and the quicker flow of traffic; to the city officials, because of the revenue received and the satisfaction expressed by the public; to the police officials, because of the improvement of traffic conditions; and to the merchants, because of the added parking facilities provided for their customers. The installation of parking meters solves the biggest percentage of traffic problems involved in the downtown congested area and provides a systematic regulation by which the problems of traffic can be more efficiently controlled."

In response to a telegram on October 22 for facts from Mayor Frederick W. Mansfield of Boston, Mass., we first informed him of our high regard for parking meters, and then discussed certain phases of policy, as follows:

"I feel that some part of the parking-meter money should be definitely set aside for traffic betterment. In explanation I might add that in the beginning I was constitutionally opposed to parking meters, and I still feel that to collect this money and put it in the General Fund marked only for traffic purposes may some time be defeated by someone contesting this method, while, if some definite part of the whole were marked for traffic improvement, it would much better stand the test. Right now we have a condition that should be taken care of in the

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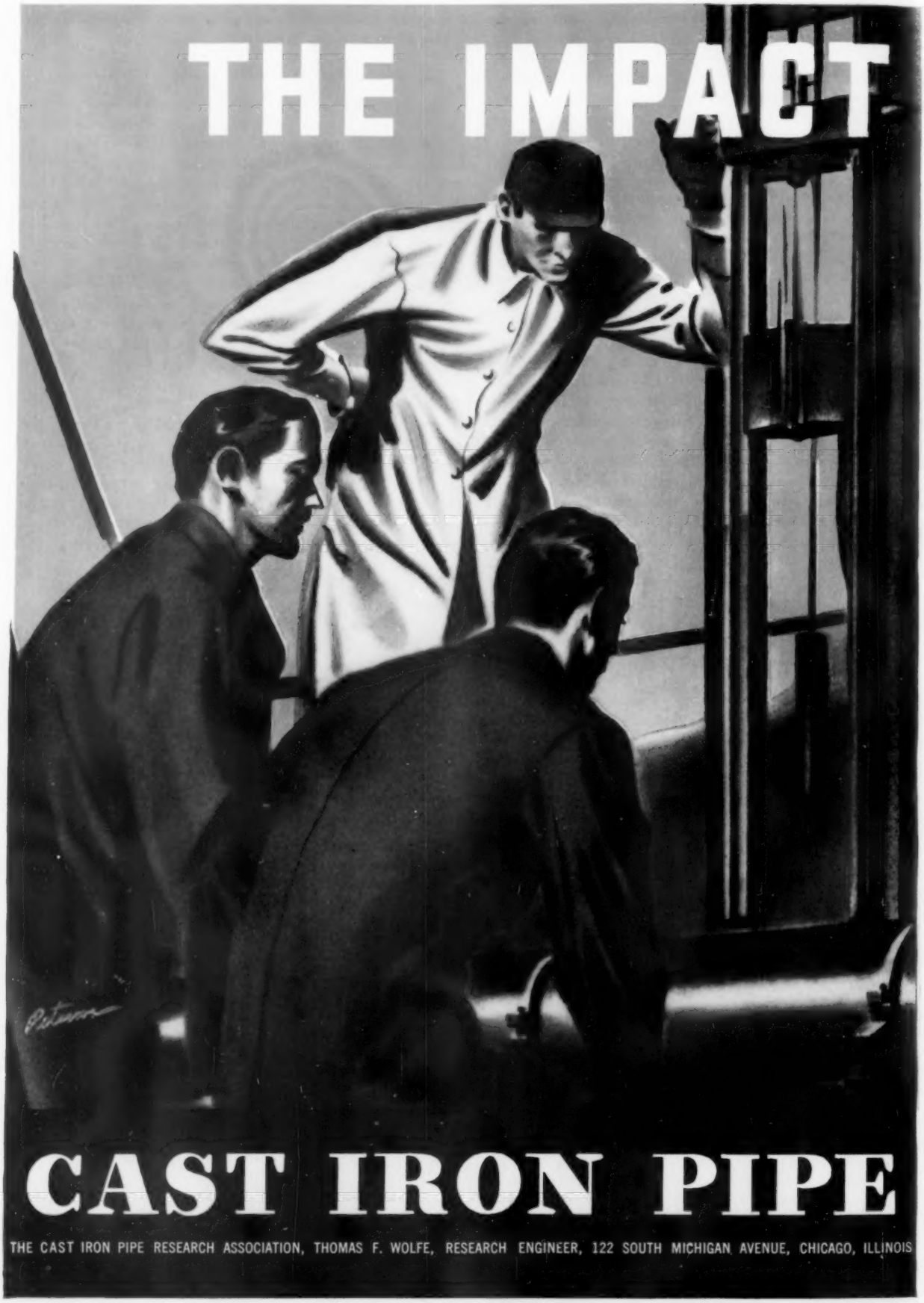
It is a National Cash Register Co. bookkeeping machine, and not a Burroughs machine as was stated on page 77 of the December issue, that is used by the City Comptroller of Memphis, Tenn., in the work which he described under the title, "Accounting Time Cut in Half."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Metered Parking Safe and Efficient

By A. E. DOWELL
Chief of Police, Fort Worth, Texas

SINCE the parking meter found its place in Fort Worth, vehicle and pedestrian accidents in the metered area, which covers 30 per cent of the business district, have fallen off to almost zero. Safety is our chief argument for parking meters, though the disappearance of the all-day parker is another boon. In fact, I find it difficult to find words to express the excellent service they are rendering the parking public.

In the summer of 1936 we installed 619 meters and in the fall 431 more; we now have 993 Dual automatics. For the seven months from January 1, 1937, to July 31, these meters earned $52,820, or $7.53 per month per meter. Monthly costs include:

Servicing: including replacing, repairing, purchasing parts, repairman's salary of $125	$150
Overhead:	
1 collector	$125
1 clerk	80
4 officers	520
1 3-wheel motorcycle maintained	50
	$775

Thus the cost to service and administer the meters amounts to 12 per cent of the income. The surplus is credited to the General Fund.

What we think of parking meters and our advice to cities that are contemplating installing them can be effectively presented by quotations from our letters to cities asking for this information. To William L. Norton, Chairman of the Public Safety Committee of the Seattle City Council, and to Oliver S. Morris, City Editor of the *Seattle Post Intelligencer*, we wrote as follows:

"The approval of the installation of parking meters is a matter of education of the people involved, including the public, the city officials, the police officials, and the merchants. Upon installation, the meters gradually sell themselves on merit; to the motoring public, because of improved parking facilities and the quicker flow of traffic; to the city officials, because of the revenue received and the satisfaction expressed by the public; to the police officials, because of the improvement of traffic conditions; and to the merchants, because of the added parking facilities provided for their customers. The installation of parking meters solves the biggest percentage of traffic problems involved in the downtown congested area and provides a systematic regulation by which the problems of traffic can be more efficiently controlled."

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DEPOSITING AND COLLECTING AT FORT WORTH, TEXAS

"First, select your most congested districts, and do not undertake to meter beyond the limits of the present congestion. This will permit those who fight the meter to park just outside the metered area. You will most likely find that those who opposed the meter soon learn the purpose of the meter.

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Fire Protection in 31 New Jersey Cities

Water Supply the Most Important Feature

THE appropriation for fire protection is usually one of the two largest items in the municipal budget, the other being for police. Being naturally interested in the general "tax burden," the New Jersey State Chamber of Commerce, through its recently created Bureau of Municipal Research, has just made and published a report that "provides authentic data which may make possible intelligent comparisons in the matter of fire and police costs, personnel, etc." This is indeed, as is pointed out, not a critical analysis, for there are too many factors characteristic of the community to permit of a direct comparison based on objective data. The table presents a selection of significant data showing the population of each city, the basic fire-insurance rating, the fire-department budget for 1937, and the total fire loss for 1936.

Insurance Rating

A good basic fire-insurance rate is desirable because it is reflected in a relatively lower cost of fire-insurance protection on every building in the community.

These basic ratings are established for each community by the Schedule Rating Office of New Jersey, maintained by the fire insurance companies doing business in the state. It performs a most valuable public service, in that it sets up fire-protection standards which inevitably lead to the reduction of fire losses not only in property but in lives as well. The grading of a municipality is based on "assigning points of deficiency to the various features of fire defense" which the community possesses or should possess, these deficiency points depending on the "extent of variance from standards" of fire-protection efficiency.

The sum of the maximum points of deficiency totals 5,000 and is divided as follows:

Water supply	1,700 points
Fire department	1,500 "
Structural conditions	700 "
Fire-alarm system	550 "
Hazards	300 "
Building laws	200 "
Police cooperation	50 "

The layman will be impressed by the importance given to water supply. It outranks even the fire department itself. In arriving at it, 32 separate items are considered, including the size and kinds of mains, distribution of hydrants, reliability of the source of water supply, and the efficiency of water-plant executives. To rate the fire department, 34 items are considered: training of firemen, number and condition of apparatus, suitability of fire stations, combustible inspection, the qualification of officers, and the available man-power, are important among them.

The fire-alarm system takes 24 items into consideration; the police, 4; the building laws, 4; fire hazards, 3; structural conditions, 14.

The lower the number of deficiency points chalked against a city, therefore, the higher or more favorable its basic rating. The highest rating is A, the lowest K. The division is as follows:

Rating	Deficiency Points
A	Less than 1,000
B	1,000 to 1,500
C	1,500 to 2,000
D	2,001 to 2,500
E	2,500 to 3,000
F	3,001 to 3,500
G	3,500 to 4,000
H	4,001 to 4,500
K	4,500 to 5,000

Cities with a seasonal population, such as the shore cities, have an "S" suffixed to the rate earned. Atlantic City, for instance, has a "CS" rating. (See table below.)

The value of this report to the cities included in it is obvious. Why should one city of 30,000 population pay only 35 cents per capita for fire protection, with fire losses amounting to approximately 60 cents in 1934, 10 cents in 1935, and 30 cents in 1936, while other cities of its class pay $2.42 to $5 per capita with similar fire losses? The answer, of course, is that the first town operates mostly on a volunteer basis, for salaries constitute the overwhelming item of expense. In the matter of salaries, while there is of course a variation, ranging from $1,700 to $3,000, this is not as great as might be expected in view of the miscellaneous character of the municipalities surveyed. The reason given for the variation is the comparative wealth of the communities.

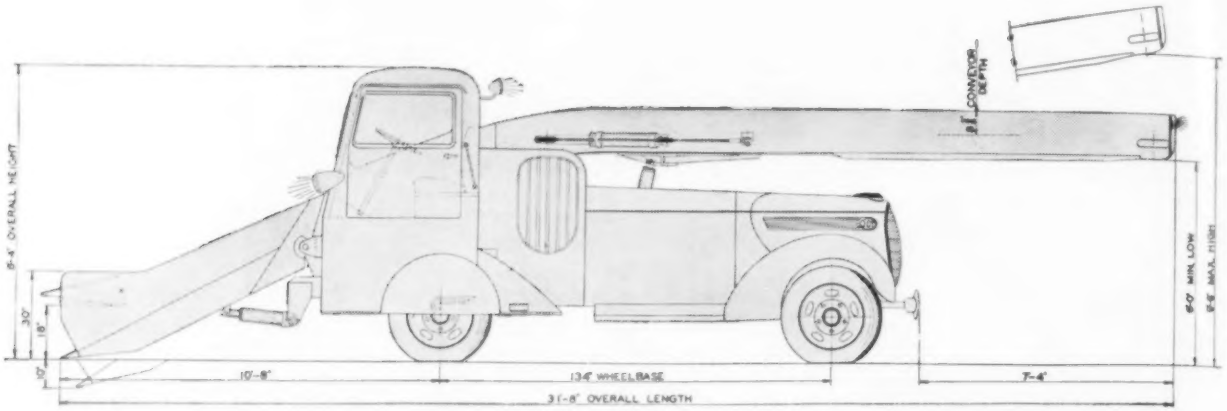
There is a considerable range in the number of firemen

FIRE FACTS FOR 31 NEW JERSEY CITIES

City	Population	Basic Rating	1937 Fire Department Cost Per Capita	1937 Fire Department Cost Budget	1936 Fire Loss
Newark	442,337	A	$4.94	$2,184,500	$684,036
Jersey City	316,715	A	4.26	1,350,066	72,795
Paterson	138,513	B	3.76	520,895	510,152
Trenton	123,356	B	3.98	491,380	36,454
Camden	118,700	B	3.06	364,000	168,185
Elizabeth	114,589	B	3.55	406,911	89,900
Bayonne	88,979	B	6.14	546,700	50,045
East Orange	68,020	A	3.60	255,000	74,943
Atlantic City	66,198	CS	8.47	560,909	213,583
Passaic	62,959	C	3.25	204,797	113,199
Hoboken	59,261	B	7.33	434,140	53,114
Union City	58,659	B	4.78	280,220	59,585
Irvington	56,733	C	3.57	202,789	34,156
Clifton	46,875	C	3.58	167,857	120,632
Perth Amboy	43,516	E	1.52	66,000	46,000
Montclair	42,017	B	4.46	187,373	51,214
Kearny	40,716	B & E [1]	5.20	211,565	81,235
North Bergen	40,714	D	5.14	209,344	33,420
Bloomfield	38,077	C	4.07	155,000	66,193
West New York	37,107	B	5.07	187,990	35,385
Orange	35,399	C	3.22	113,829	41,025
New Brunswick	34,555	C	4.23	146,000	40,598
Plainfield	34,422	B	4.69	161,545	66,097
Garfield	29,739	D	.35	10,500	12,140
Belleville	26,974	D	No figure	65,225	9,417
Woodbridge	25,266	C to G [2]	No figure	.....	No report
Hackensack	24,568	C	4.64	114,875	31,081
West Orange	24,327	D	4.57	111,132	23,531
Maplewood	21,321	C	3.68	79,450	8,635
Linden	21,206	C	5.49	116,480	19,959
Nutley	20,572	C	1.25	25,615	2,840

[1] B ..... 1,001 to 1,500

[2] Woodbridge is divided into 8 fire districts, each having its own rating. They vary to include C, D, E and G ratings.



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per 10,000 inhabitants—from 3 to 33. The three A-rated cities of populations 442,000, 317,000 and 68,000, have respectively 16, 16 and 13 firemen per 10,000 inhabitants. Base pay for these three cities is $2,100-$2,500, $2,600-$3,000, and $1,950-$2,500.

Newark's 30 stations operate 12 combination trucks, 37 pumpers, 14 aerials and ladder trucks, a water tower, an emergency truck, 8 chiefs' cars, 14 miscellaneous vehicles, a total of 91 pieces. These defenses were described by Director Michael P. Duffy in our November, 1936, issue.

East Orange, proud of its efficient and comparatively inexpensive Grade-A Fire Department described by Deputy Chief James Thompson, Jr., in the January, 1937, issue, has five stations, with two combinations, five pumpers, two aerials, an emergency truck, two chiefs' cars, two repair trucks, and another vehicle, making a total of 16 pieces. The budget for this city of 68,000 population is $255,000, or $3.60 per capita, of which $15,000 is for equipment and material and $3,300 is for the fire alarm. There are 16 captains at $3,000, and 72 men at $1,950 to $2,500. Fire losses in 1934-36 amounted to $34,342, $42,215, and $74,943, or 50 cents to $1.10 per capita.

As practically all the 30 cities reporting on number of stations and pieces of apparatus operate on the double-platoon system, a certain amount of reserve apparatus is required to put their off-shift usefully to work in the event of a serious fire. Only 13 of the cities report that they have reserve apparatus, 9 make no mention of it, while 8 cities report the possession of 20 pieces of reserve apparatus, out of a total of 235 pieces in active service, of which 86 are pumpers, aerials or hook-and-ladder trucks.

Citizen Support Necessary for City Planning

By CHARLOTTE S. ASHMAN
Chairman, City Planning Commission, Peoria, Ill.

IN Peoria we have found that in order to carry on city planning effectively, it is necessary to have a well-organized citizens group to sponsor and publicly support the proper planning and building of our city. In 1927 the Greater Peoria Civic Association was formed. It consists of three representatives from each of 70 men's and 125 women's organizations and about 500 individual members. Its official staff consists of a president, three vice-presidents, an executive secretary, a recording secretary, a corresponding secretary and a treasurer. The affairs of the organization are under the supervision of the officers and a Board of 16 Directors. The organization has the following standing committees: Public Relations with a Speakers' and a Publicity Division; Membership; Legal; Streets; Finance; Parks and Recreation; Housing; Shade Tree; and Civic Center Committees. The organization is financed by individual and group memberships ranging from $1 to $500. There are no paid officers, the organization being entirely voluntary.

The objects and aims of the Association are:

1. To promote interest in city planning; to support all civic and physical improvements of Peoria in accordance with the Comprehensive Regional Plan, and to strive for those things that will result in improved living and working conditions within the Peoria Region.

2. To sponsor maintenance and observance of the provisions of the Zoning Ordinance.

3. To sponsor the proper regulation of subdivisions and thereby promote the execution of the Plan.

4. To educate the community through publication and publicizing the City Plan.

5. To establish a full-time office with a paid executive and to sponsor the proper spending of public funds by providing for long-range programs of public works.

The Association's achievements include the following:

1. It has secured by ordinance a City Planning Commission consisting of three aldermen, three citizens and three city officials.

2. The organization sponsored the employment of consultants who prepared a Comprehensive Regional Plan at a cost of $23,500 consisting of the following: (a) The Major Street Plan; (b) The Transportation Plan; (c) The Zoning Ordinance; (d) The Transit Plan; (e) The Recreation, Park and School Site Plan; (f) The Civic Center Plan.

3. The organization has conducted an educational program for dinner meetings and group meetings by providing club speakers, and has published the official plan, so that it is available for use in the public schools and by other civic organizations.

4. Through the City Planning Commission, it has helped to control the platting of all subdivisions within the city of Peoria and within 1½ miles of the city limits, and as a result has secured numerous dedications of property of sufficient width on proposed major streets.

5. It has secured passage of the first building line or setback line ordinance in the state of Illinois, which will save the city large sums of money on future street widening.

6. During the period of the CWA, the organization paid the consultant's fee and secured for the city of Peoria approximately $17,000 worth of city planning and engineering work. This consisted of: (a) a complete traffic survey of Peoria and environs, which was published in pamphlet form; (b) the preparation of 96 quarter-section maps at a scale of 100 feet to the inch, covering the entire city and all adjacent subdivision; (c) the preparation of study plans showing all the land and buildings together with their valuations along 80 miles of proposed major streets. These maps were used in preparing the building line ordinance; (d) the preparation of a new and up-to-date city map; together with numerous surveys and preliminary plans for proposed street openings and connections.

7. The organization through its various committees is continually supporting and cooperating with the various city officials to secure improvements in accordance with the Plan.

Our experience has shown us that because of the constantly shifting character of our appointed and elected officials, an organization similar to ours is absolutely essential for effective city planning because of the necessarily long-range character of planning. We could cite numerous instances where our Zoning Ordinance would have been changed prematurely, where improvements would have been done in a haphazard manner, and where school sites and playgrounds would have been improperly located, except for the beneficial influence that is exerted by this effective citizens group.

(See also pages 59 and 60, this issue.)

TAKE THE SPEED PATROL WAY..

No. 54 Tandem Drive Speed Patrol grading new streets in the town of Union, Broome County, New York.

...TO *Easy* STREETS

Streets that are smooth, streets free from snow, streets that can be traveled safely the year 'round—those are the streets that are easy on the taxpayer's temper, easy on his auto, easy on his pocketbook. The Allis-Chalmers Speed Patrol will build such streets for your city, from the ground up if necessary, and then keep them constantly smooth. Correct speeds (from 2.3 to 10 M.P.H.) are available for every job—ditching, oil mixing, scarifying, maintenance, snow plowing, traveling. Proper weight distribution between front end, blade and rear end gives more effective blade pressure, holds the blade to its work, prevents side-slipping and makes steering easier. That means more work done with less operator strain. Stout, all-bolted construction assures complete wear take-up, longer life and lower repair cost, consequently, less final cost to the taxpayer. Ask your nearest Allis-Chalmers dealer to show you how Speed Patrols can put your city on easy streets and keep it there.

The leaning wheels of this No. 54 Tandem Drive Speed Patrol make for easier ditching.

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SPEED PATROLS

SINGLE OR TANDEM DRIVE

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GASOLINE, DISTILLATE, DIESEL FUEL OIL

Children's Contacts with Their City's Laws

What Happened When Eight- and Nine-Year-Olds Began to Ask the Why and Wherefore

By MILDRED MOODY EAKIN

THEY were a group of 22 third-grade children, eight and nine years old. Some people think that children of that age are little more than babies, but they are mistaken. Children of eight and nine are confronted with problems similar to those faced by adults.

This is true, for example, in their experiences with the institutions and regulations of the community in which they live. These boys and girls own dogs, and their town has a dog ordinance. They own "rifles," and there is a rifle ordinance. They cross busy streets and ride in automobiles, and there are traffic laws. Continually they are coming up against the rules and regulations of organized society. What shall be their attitude toward this authority? One of antagonism? One of compliance or evasion from no better motive than fear? Or shall it be an attitude based on an intelligent understanding of the why and wherefore of law as it touches their own activities? This attitude, thought the teacher of the church-school group of 22, was worth trying for.

The Town Committee — local governing body — had just adopted the rifle ordinance. All the youngsters knew about it was that it forbade the use of rifles. They were up in arms, to use an appropriate figure. Why such a law? They didn't know. Was there any provision for the use of rifles anywhere? They did not know. What were the provisions of the hated dog ordinance? If there was a muzzle law, why did so many dogs run around without muzzles? And what about those 20-mile speed limit signs all along the boulevard which—as these boys and girls did not fail to notice—their parents and other drivers blithely ignored? Weren't laws meant to be obeyed? It was all very confusing, and evidence was not lacking that out of such confusion antagonism could come. "There isn't a policeman in town can make me muzzle my dog," said one of these cherubs, with set jaw and angry eye—angry at just the thought of such injustice to his "Pal."

The group and their teacher decided to ask the Chairman of the Town Committee to come and help them out of the tangle. So a letter was composed and sent to this official. It was thought that he, if anybody, could tell them what really were the provisions of the laws in which they were interested —why the police didn't do something about it when laws were openly broken—whether there were laws that were not supposed to be kept—why such laws as the dog and rifle ordinances had been passed. These things and more they wanted to know.

Learning a Lot—on Both Sides

The Committee Chairman came, and the youngsters learned a lot from him. Nor was the enlightenment all one-sided.

"We'd be able to keep these laws better if we knew about them," a boy suggested in the course of the conference. "Our parents may know, but we don't. Couldn't you print the laws that we ought to know about in words that we can understand and have them given to all the children in school?"

The official, a bit startled that such a constructive suggestion should come from such youthful citizens, took a notebook out of his pocket. "That's a good idea," he said, "a corking idea. I'll submit it to the Committee at the next meeting."

With one suggestion so well received, the youngsters warmed up to the job. "Those 20-mile speed limit laws. They ought to be changed. Can't you ask the Committee to change them?"

For one horrid moment the teacher thought the committeeman was going to laugh. But he measured up to the occasion. He rose and walked to the front of the room. "Well now," he said, "that's a different thing. You see, we made the dog ordinance and the rifle ordinance ourselves, in this town and for this town. But those speed laws for the boulevard are made at the state capital and apply to all state roads. We can't change them ourselves."

"Who can?"

"The State Legislature."

"Then can't you write to them and ask them to change these laws?" The children weren't easily diverted from their big idea.

"We can write, but I'm afraid it won't do much good. I agree with you that the reasons for keeping the limit marked on the signs at twenty miles when we expect people to drive faster aren't good reasons, but . . ."

"We don't know what to obey and what not."

"I'll write."

The conference ended, but the study of laws and the requirements of citizenship did not—for some time.

Civic Interest Brings Town Improvement

"I wish we had a library here," said a member of the class one day. They were needing a book which they could get only by going to a neighboring town and paying to take it out.

"How does a town go about getting a library?" the teacher asked.

A number of ways were talked over. It developed that the need for a local library had been long felt and often discussed, but that so far the movement hadn't got beyond the discussing stage. What organization in the town had shown most interest in it—was likely to be most effective in putting the idea across? The Women's Club, it was thought. Very well. The group would write a letter to the president of the club, urging that the campaign be pushed and offering their support. The letter was written. The library is now a reality, and the first six months' records show that more children than adults are using it. Needless to say, these eight- and nine-year-olds did not bring the idea to fruition, but they did their bit.

These things and much else the youngsters did. When the period allotted to these activities was ended, a satisfying sense of having accomplished something worth while pervaded the group. They had not constructed a model village. Instead, they had done some things which would help to bring greater safety and happiness to their own town. They were learning to be good citizens by doing something about the conditions which were the everyday conditions they met.

It is not clear how a local community, or the great community which is our nation, can safeguard its future except as it takes seriously the obligation of guiding its children in their contacts with, and thinking about, laws and government. The job would be easier, of course, if our laws were not in such a mess. And they'll not be—indefinitely—if we encourage the younger generation to do serious thinking about them.

Maintenance and Lubrication of Sewage Clarifiers

By G. D. POWELL
Field Engineer, The Dorr Company, Inc., Engineers

CLARIFIERS are designed to continuously and automatically remove substantially all of the settleable solids from a flow of liquids such as sewage, trade wastes, or water under treatment.

The point at which the influent enters a Dorr clarifier depends upon the type of clarifier being used. In a side feed clarifier, as the name implies, the influent is introduced into the clarifier basin either through ports placed in one side of the tank and located below the liquid surface, or over an influent weir at the side of the tank. In either case, baffles are so installed as to prevent the incoming water or sewage from setting up strong currents in the contents of the tank which would retard sedimentation. In the Dorr Sifeed clarifier, "Sifeed" meaning siphon feed, the influent is introduced through ports in the center pier of the clarifier and flows toward the periphery of the tank through an influent well formed by a perforated baffle surrounding the upper part of the center pier.

As the liquid-solid mixture flows toward the point of exit, the solids settle to the bottom of the tank and thus the liquid at the surface becomes clarified.

The clarified liquid overflows an effluent weir. In clarifiers fed at the center, such as the Sifeed, the effluent weir extends around the entire periphery of the tank. In clarifiers fed at one side, the effluent weir extends along the side of the tank opposite to the influent weir. In either case, the effluent weir must be absolutely level so that the overflow will be in the form of an even, thin sheet over the length or circumference of the weir. Only in this way can short-circuiting of part of the flow at one or more points be prevented and assure a clear overflow.

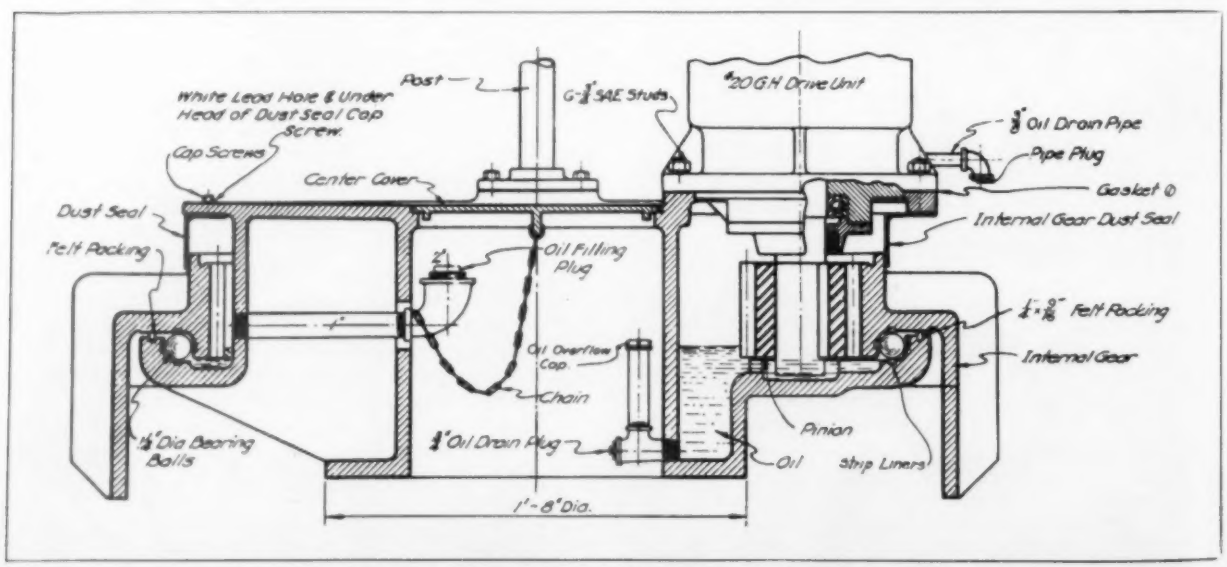
The solids, which settle to the bottom of the tank, form a layer of sludge which is continuously raked to the center of the tank by plow blades fastened to radial rake arms. These rake arms slowly and continuously revolve about the central shaft of the clarifier in such a way as not to disturb the settling action of the solids.

Besides making provision for a clear effluent and a thickened sludge, it is frequently necessary in primary clarification of sewage to remove a scum which forms on the surface of the liquid. A special skimming device is usually provided for this. In addition, scum baffles may be placed just before the overflow weir to prevent the scum from flowing over with the effluent. In installing such baffles the bolts should be so placed that their heads do not project on the inside and interfere with the skimming device.

Starting a New Clarifier

Before starting a new machine, or one that has been out of service for some time, the mechanism should be carefully inspected before filling the tank to see that proper clearances exist between all moving parts and the concrete, and also that all parts are in alignment. Normally, in the case of new equipment, such an inspection is made by an engineer representing the manufacturer.

An important check is to see that the proper clearance exists between the blades and the tank bottom. On new clarifiers the bottom of the tank should have been screeded in with the mechanism after the arms have been adjusted



THE DRIVE HEAD OF A DORR CLARIFIER, SHOWING THE PROVISIONS FOR LUBRICATION

A DORR CLARIFIER AT THE MANSFIELD, OHIO, SEWAGE-TREATMENT PLANT

for proper clearance.

Normally, the clearance between brass squeegees and tank bottom should be about the thickness of a squeegee. Preferably, such a minimum clearance should be maintained throughout a complete revolution of the rake arm. The reason for this is that in sewage treatment the sludge in all unswept portions of the tank bottom will become septic and rise to the surface in unsightly "globs."

To be certain of finding all such discrepancies and to permit adjustments, the clarifier mechanism should be run for several hours with the tank empty. When all adjustments are satisfactory, the sewage may be admitted.

Sludge Pumping and Depth of Sludge

At the start, sludge should be withdrawn frequently until a definite schedule for removal can be made. The sludge-removal schedule finally chosen should be strictly followed. Such a schedule should call for withdrawal of sludge at least twice every 24 hours in most cases, and in many instances more often.

The object of such a schedule should be to regulate the discharge rate so that solids are continuously removed at the desired density and at the rate that they are settling out of the liquid. Such a rate will eliminate any chance of the solids gradually building up in the clarifier and becoming septic or causing an overload. To be sure of this, do not try to discharge the sludge at too thick a consistency.

It should be understood that this removal schedule has nothing to do with the operation of the raking mechanism. The raking arms move so slowly they must run continuously, or nearly so, to convey the sludge to the discharge cone.

The quantity of grit in the incoming flow is very important. If grit is present in appreciable quantities, more frequent pumping will be necessary. When grit is present in large quantities, some provision for its removal prior to its entrance into the clarifier should be made.

A depth of sludge of 12 to 24 inches, depending on the size of the clarifier, should be kept over the point of sludge discharge at all times. This layer of sludge forms a seal over the discharge trench and the sludge outlet pipe and thus insures that a sludge of the lowest possible moisture content is removed.

Causes and Cures for Common Troubles

Two warnings that should always be heeded are:

(1) Do not attempt to keep machine running when an overload is indicated. Find and remove the trouble!

(2) Do not start up with a heavy load in the tank. Remove it.

Clarifiers should be provided with an automatic overload alarm. When properly regulated, this mechanism will convey to the operator a relative idea of what the sludge load is in the tank. A sudden movement of the pointer should always be investigated thoroughly, for it is possible that some foreign object has entered the tank and wedged under the arms.

Operation of the overload alarm may mean either of two conditions:

(1) There is an accumulation of sludge in the tank, which has been gradually building up owing to the sludge being discharged at an average rate less than the rate of introduction of solids with the feed. In such a case, the discharge line should be immediately opened up to eliminate the excess of sludge. If the overload is too heavy, the heater coils in the starter box cut out the motor. It will probably be necessary to drain the tank and sluice out the sludge.

(2) Some foreign object may have dropped into the tank accidentally. Stop the mechanism and see if the object can be "fished" out. If not successful within a short time, it will be necessary to shut off the influent to prevent too great an accumulation of sludge. If the object cannot be removed with the tank full, it will be necessary to drain the tank and remove the object before operating the machine.

If sludge is allowed to become too thick, it may plug the discharge line; also, some foreign material may have gotten into the line to cause the plugging. To correct this, turn high-pressure water back through the underflow line until the line is cleared.

Routine Maintenance Measures

(1) All bolts and nuts should be kept tight and original alignments and adjustments maintained.

(2) If the power is shut off, or if the mechanism is stopped for any reason for longer than an hour, by-pass

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Socony R. C. No. 3, Standard Brand, Cut-Back used for Surface Treatment on Molly Stark Trail near Brattleboro, Vermont.

SOCONY Asphalt Road Oils • Socony Asphalt Joint Fillers • Socony Waterproofing Asphalt • Socony Cut-Back Surfacing Asphalt • Socony Asphalt Binder A for surface treatment • Socony Refined Asphalt for sheet asphalt paving • Socony Cold Patch Asphalt for all types of patching • Socony Asphalt Binders B & C for penetration work (Asphalt Macadam) • Socony Paving Asphalt 51-60 and 61-70 Penetration for the mixing method (Asphaltic Concrete) • *Specifications and all other particulars furnished on request.*

SOCONY-VACUUM OIL CO.
INCORPORATED
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the flow until the machine is again started. This will prevent an over-accumulation of settled solids.

(3) Keep the machine and surroundings clean, and touch up all rust spots with paint frequently.

(4) It is advisable that the entire mechanism above and below the water line be painted once every year.

Lubrication of Clarifiers

The drawing shows the center mechanism of a Type SU Dorr clarifier and the provisions made for lubrication. The following rules should be observed in lubricating units of this type:

Electric Drive Motor.—Owing to the widespread use of and general familiarity with electric motors, we will dispense with any discussion of their lubrication. Manufacturer's instructions are always sent with the motor. The motor is not shown in the illustration. However, its location and that of the speed reducer are indicated by the designation, "No. 20 G. H. Drive Unit."

Speed Reducer.—With a new unit it is always advisable to change the oil after a comparatively short initial operating period. Manufacturer's instructions regarding such matters always accompany the unit. For example, with the Heliocentric reducer used on Type SU Dorr clarifiers, the manufacturer recommends that the oil be changed after the first 100 hours of operation. Subsequently, the drive unit should be drained and filled with fresh oil after every 2,000 hours of operation.

Only high-quality, reliable brands of oil should be used. For summer temperatures of 50° F and above, a viscosity of SAE 40 is correct for the Heliocentric type drive. For temperatures below 50° F, the oil should be changed to one having a viscosity of SAE 30.

Center Drive Mechanism.—The provision for lubricating the ball races, bronze bushings, and contacting faces of gear teeth from a single oil reservoir is indicated in the line drawing.

The speed of the mechanism is so slow that the oil in the reservoir should last for some time. A small amount should be occasionally drained off for examination. Any water found in the oil due to accumulated condensation or rain leaking through gear-casing connections should be drained out.

Where winter and summer temperatures are in sharp contrast, it is necessary in the fall to change from the heavy summer oil to a light winter oil to maintain an appropriate viscosity. Other than mentioned above, the factor determining whether oil should be renewed is any chemical or physical change which would destroy its lubricating value.

Sewage-Treatment Costs in Worcester, Mass.

THE total sewage flow in Worcester, Mass., during 1936, according to the Annual Report of John H. Brooks, Jr., Superintendent of Sewers, was 8,066.62 million gallons, representing a daily average of 22.04 million gallons. These figures are greater than any since 1928; they represent quantities which might be expected under normal industrial conditions. With some allowance for the large rainfall and its effect upon the sewage flow, the quantity of sewage may be considered as a good indication of improved industrial conditions.

The maximum daily sewage flow ever received at the sewage-treatment plant was on March 18, 1936, the date of the second New England flood of 1936. The outfall sewer ran full throughout the entire 24 hours, an exceptional condition.

The cost of sewage treatment is summarized as follows:

	Total	Per Million Gallons
Grit chambers	$ 481.24	$0.06
Screen	2,608.30	0.32
Imhoff tanks	9,952.17	1.24
Trickling filters	11,200.88	1.39
Secondary tanks	7,205.72	0.89
Sludge disposal	7,637.08	0.95
Laboratory	5,958.66	0.74
	$45,044.05	$5.59
Real estate	94.38	
	$45,138.43	

The actual cost of operation of the sewage-treatment plant is not directly related to the amount of sewage treated in a plant of this size. Variation in the quantity of storm-water sewage causes a marked change in the cost of treatment per million gallons. In addition to this factor which always is present each year, unusual conditions during the past years of welfare and Federal workers have rendered cost figures of questionable value when divided into various accounts. The expenditure of $45,044.05 represents a cost of $5.59 per million gallons of sewage treated by the plant. The cost per capita served was approximately 23.7 cents for the year.

Demand for Dry Sludge Continues Unabated

THE demand for dried sludge from the sewage-treatment plant of Schenectady, N. Y., was greater in 1936 than in any previous fiscal year. Before the end of the sludge season, the storage piles were depleted, and the only sludge available at the end of the year was that on the beds. The municipal golf course utilized considerable sludge for the first time.

All sludge for dewatering was drawn onto the sludge beds to a depth varying from 10 to 13 inches, depending on the character of the sludge, the expected weather conditions, and the working schedule of the sludge-bed crew. The ten drying beds were dosed 89 times in 1936, providing for 8.9 fillings per bed.

Sludge was removed after a drying period varying from a minimum of 9 days to a maximum of 28 days, the former coming during the ideal drying weather of midsummer, and the latter in the wet fall. A total of 2,610 cubic yards of air-dried sludge was produced during the year, of which 250 yards remained on the drying beds awaiting its removal by fertilizer customers.

Most of the sludge was hauled to the storage fields or to the newly-completed concrete sludge storage apron to await removal by produce growers and householders. Considerable sludge was hauled directly from the beds by customers, in some instances the purchasers cleaning the beds themselves and saving the city the cost of labor and team hire. The sludge storage apron was very popular with the haulers, because of the improved shoveling and traction conditions. The sludge stored on the apron shrank in volume equally as well as the sludge in the fields.

The sludge beds were sanded with sand obtained at no cost from the plant's spoil bank. This material, Barge Canal dredgings, is not of satisfactory grain size, but it meets the purpose if it is not used too heavily as a top dressing on the beds.

—From the Twenty-Second Annual Report of the Division of Sewage Disposal, Schenectady, N. Y.

EAST SIDE · WEST SIDE · ALL AROUND THE TOWN

-ALL AROUND THE YEAR!

• The city of Spokane, Washington, thinks so much of the "Caterpillar" Diesel Auto Patrol that it owns and operates a *fleet of five!* Two of the five are shown herewith. Average fuel-consumption for each machine is *only* 1.3 gallons of inexpensive Diesel fuel per hour!

ONE after the other — as the seasons come and go — the "Caterpillar" Diesel Auto Patrol willingly takes on new and necessary tasks. Literally, its work is never done.

It clears snow off the streets in winter — clears it quickly and *thoroughly*. Moderately heavy snows are handled without the plow attachment because the wide blade of the Auto Patrol pulls drifts and banks from curbs and gutters, allowing free draining.

When spring comes, the Auto Patrol scarifies the winter-worn streets — then smooths them off to a fine finish. It builds new roads . . . reclaims and maintains old ones . . . slopes banks . . . digs ditches . . . pulls rollers . . . cleans shoulders . . . handles oil-mix . . . and, as winter comes on again, gives the streets a final once-over to make the snow-removal job easier and better.

Throughout this never-ending round of work, the "Caterpillar" Diesel Auto Patrol asks only a *minimum* of fuel and repairs . . . moves from one part of the city to the other, quickly and economically at 10 m.p.h. . . . and *never* injures so much as an inch of pavement. See your nearest dealer — or write us for facts and figures pertaining to *your* streets.

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The Small City's Planning Problems

By FREDERICK R. STORRER
City Engineer, Dearborn, Mich.

IN many of our smaller cities the city engineer or the public works director is acting as the planning engineer and must continue to do so for some time, until the universities have ground out a few more men with a degree in City Planning and they have gained their essential years of experience by making just enough mistakes to realize that they do not know what city planning is all about.

First, there are over 3,100 municipalities in the United States with a population of over 2,500 persons. Of this number, 1,700, or more than half, are reported by the National Resources Committee as having planning or zoning accomplishments. More than 1,050 have planning agencies, but less than 50 of them provide their planning agencies with sufficient funds for a city planner. Of the 918 cities between 10,000 to 200,000 population, 658, or almost three-fourths, had planning agencies or zoning accomplishments to their credit, but only 25 provided their planning agencies with sufficient funds for a city planner. So it appears to me that the city engineer is directing the planning work. Since the city engineer generally has more to do with the carrying-out of the plan than any other person, he is generally able to see the practical difficulties involved. He also has to live with the plan every day. Most city engineers and public works officials lose sight of the general idea for development of the whole city, because they are too much absorbed in the particular job before them.

What are their problems?

City Planning Needs Appropriations

One of the problems appears to be to convince the city fathers that planning is important, sufficiently so at least to establish a planning agency that doesn't have to beg funds from another department. This is a common problem with all departments. However, planning is not going to get beyond the stages of wishful procedure until the plans have left the draftsman's board. Planning commissions do not get far unless they have some one to work out their suggestions—and that takes appropriations. Unless you have them, your planning stagnates. In too many cities, planning commissions are inactive because they have no one to work out their ideas and prepare them beyond the wishful stage.

Perhaps we haven't the right idea as to what city planning is. To me, it doesn't mean the *City Beautiful* nearly as much as it means the *City Practical*. A practical city will be beautiful because it wears well. People that have to live in it are not going to cuss because they must live in it, but they are going to live in it by choice because it is enjoyable and practical. Industries and business want profitable locations. They should not locate where the sewers, water mains, highways and other utilities are not adequate. Too much stress has been laid on the esthetic side of city planning rather than upon the side that affects our pocketbook.

Most planning in the past has cost us money because it was corrective planning; that is, undoing the things that have been done in the past so that life will be more worth living in the cities. This is particularly true of the large cities, and since laymen generally judge city planning by its accomplishments, they say that city planning costs money. Smaller cities can avoid most of the expense by planning now for their future needs and acquiring them before it becomes expensive. If cities really planned, many things now being done would not have to be undone later. Land condemnations to buy back what should have been public land would not be necessary. Practical planning is pretty much of an engineering job.

Today, many cities need parks and playgrounds. Why? Because the kids do not have any place to play. Tomorrow, these cities are going to need more jails and penitentiaries. Why? Because the kids didn't have any place to play today. This is going to be an expense, so why not choose the lesser of the two evils?

Much of this could have been eliminated by proper zoning regulations. We have learned that building lots are too small; so we are now insisting that on new plats they be made larger. Many of us grew up in small towns or farms that were not overcrowded. Some others are still there, but there are not many smaller cities that are not troubled with some overcrowding. We didn't need the public open spaces then, because we had them in our back yards, and if we had some of that same space in our back yards today, there would not be such a crying need for parks and playgrounds with the necessary supervised play. Supervised play costs money, but when the kids can't play in their own back yard, the city has to provide it for them.

Overcrowding is responsible for a lot of our ills. Persons living in cities must remember that they are in close proximity to each other—close enough so that it is some concern of theirs if their neighbor keeps pigs in the parlor or starts a machine shop next door. There isn't any need for such overcrowding. If all the families in the United States were housed in single-family dwellings on an average lot 50 by 120 feet and we included an equal amount of land to accommodate business and industrial property, it would take about one-third the area of the state of Georgia to accommodate them comfortably.

Urban Subdivisions

Most cities have too much subdivided property, and the market for it hit rock bottom about four years ago. Without definite statistics to prove it, I will venture to say that there is enough subdivided property within present urban boundaries to accommodate more than double the present urban population. In know that in many cities the condition is worse. What can be done with it and how the owner of it can hope to realize any profit from its sale is beyond me. The assessors know there is too much subdivided property, and the treasurers will know it when they have to sell it for taxes. The cities do not want such

MARK-TIME SCORES **FIRST** AGAIN!

MARK-TIME *always* SCORES **FIRST** WHEN THE DECISION IS LEFT TO TECHNICAL EXPERTS WHO KNOW!

PATERSON, N. J., SATURDAY NOVEMBER 6, 1937

To Install 1,000 ParkingMetersHere Within 3 Weeks

Works Board Votes Same Type as Passaic

O.K.'d BY ENGINEERS

Mark-Time Meter Is Adopted as Best, with Karpark Next

In about three weeks, Paterson's midtown area will be parking-metered, following the action of the Board of Works late yesterday afternoo in selecting the Mark-Time meter, manufactured by the Parking Meter Company of New Jersey, a Passaic company. One thousand meters will be ordered.

Mayor Concurs

The selection was made upon the recommendation of three technical experts drafted by President C. Walter Lotte, of the Board of Works, who yesterday inspected seven types of parking meters, automatic and manual. Following the inspection, the board decided to make the selection known at a conference on Monday afternoon. However, after receiving the report of experts findings, members of the board and Mayor John V. Hinchliffe made the decision at once.

The technical experts who made the selection were: James B. Whittaker, of the Watson Machine company; Frederick Kent, of the Sipp-Eastwood company and Albert A. Tumser, of the Wright Aeronautical Corporation.

The trio of experts selected the Mark-Time meter, a manual type, because of its simplicity as compared with other types which were under consideration.

The meter is operated by the insertion of a nickel and pulling a lever which sets the clock in motion, allowing one hour of time for legal parking. Exclusive of the timer, the meter has only three moving parts. The clock does not require winding —when the coin is inserted it is automatically wound.

Karpark Next in Line

In the automatic meter field, the trio of experts named the Karpark meter as the best. The automatic type differs from the manual type in that when one inserts a coin it is not necessary to pull a lever setting the clock in motion. The selection went to the manual type because in the opinion of the experts it was less likely to go out of order because there are less parts in the machine.

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property to stay idle, nor do the owners, but the country is certainly not increasing its population fast enough for the owner of poorly located vacant property to have any hope of its becoming improved for private use within their lifetime.

Fortunately for the cities, land prices have not come back to the old level, and two lots can now be bought for what one used to cost. A number of people have been educated to this and are buying two lots for one house. Urban land prices are still too high. There are too many people who arrive at the value of land by adding a few dollars to the price of the last sale. They have not found out yet that the purpose for which land can be used has something to do with it. They haven't realized either that if there are 10,000 other lots exactly alike, they probably are all worth the same. Voluntary buying of more than one lot per house will help solve the excess land problem and the overcrowding problem at the same time. On the edges of every industrial city, shantytown is building up because land costs in the city are too high. People moving to the edges of the city is not going to increase the value of urban lots. Capital costs have got to be written down—and the depression surely helped. But sewers, water mains, streets and other improvements are still in to serve a crowded population, so much of the money spent for them has gone out the window. It should have been planned differently in the first place, which would all be very fine if we had been able to plan it. Most of the problem was inherited. We shall also inherit shantytown some day, which is going to be expensive for the cities because it "just grew" as cheaply as possible.

Zoning versus Special Privileges

Having the problem on our hands, the next best step is to regulate congestion and land use in the cities. There have been a number of cries lately that zoning ordinances are out of date. The answer to this is "yes" and "no." About 85 per cent of them have been written or revised in the last 15 years, and a zoning ordinance shouldn't get very far out of date in that time. But most of them do not go far enough in trying to remake the city or preserve the status quo in the sections that are still unspoiled. Most of them should be revised so as to permit less than half as much land for buildable area as is now used. Then they wouldn't be out of date, but there certainly would be an awful protest.

The public is a selfish animal. We were gullible and bought land that is and never will be any good, but, rather than admit it, we will blame the city for it. The city administration takes a lot of blame that it does not deserve. Each one wants special privileges, but at the same time he does not see why his neighbor should have special privileges. Zoning is generally done with the idea of permitting the land uses in certain districts that are most apt to be suitable for those districts, and there is the rub. No one can draw a zoning ordinance that is going to suit all the property owners. One very common fault in cities is that subdividers of property wanted to be sure there would be no lack of business frontage, and they therefore laid out the land in the ratio of about one business lot for every five residential lots. In some places, this ratio is one to two. Obviously, these so-called business lots can never be used for business, since the proper ratio lies somewhere between 1 to 15 and 1 to 25. It isn't for the best interest of any city or individual to have unused improved business property. No one profits by it. The closer we approach the 1 to 25 ratio, the more will be the protests because there will be more persons who still think their lot is suitable for business, and that the reason for their not being able to use it is the zoning ordinance. This isn't the case, however, because they forget that they didn't have business frontage in the first place. All they had was a 20-foot lot. Traffic going by the door makes business frontage, and not the size of the lot.

Some people think that zoning is just a reason for a lot of their headaches and not worth it; but it does keep beer gardens, gas stations and small machine shops out of residential districts, and when it does this, it is worth while. At least some people are not going to have the price of their property depreciated because a few want to take advantage, and there we save some more money in the pocketbook—but not the city's pocketbook this time.

Trailers

Some cities have had trouble with trailers. In Michigan trailers have been classified by a local court as dwellings, and if you have a zoning ordinance, you will not have trouble with trailers, because trailer camps cannot operate profitably when they have to provide the space required for dwellings. The single trailer, to my mind, is not a nuisance. It requires less work to keep them clean and sanitary than a house, and so far the newspapers haven't carried any headlines of epidemics which have started in them. This is more than can be said of many of the other districts in the city. The trailer certainly meets a need, and there is no use shouting about something that fills a definite need, because it will come in spite of you. The shout that they pay no real estate taxes is an empty complaint. No one living can escape paying taxes, and if these people are not taxed heavily enough in the minds of the city authorities, then the system of levying them should be changed. Sooner or later, we are going to find that the tax system of cities is out of date anyway, and it will be the planner's job to figure out a better one.

I believe that zoning, from the planning angle, is important and important to enforce. Once the ordinance is on the books, it is generally the job of the superintendent of public works or the city engineer to enforce it; and it is also his job to see that those who complain about its restricting them go away with the right picture in mind.

Zoning is technical enough to require an expert's advice in its preparation, and, if prepared by an expert, do not condemn it when he isn't around. At least give the ordinance the benefit of the doubt until you are sure you know what it is all about and understand it yourself.

No one wants to live where there is smoke all the time, or where traffic is going by the door all the time, or where trees and grass won't grow. Good business doesn't want to locate where there is no business, and industry doesn't want to locate where it is bound to have trouble. Cities that do not provide the desirable environment for residences, good locations for business, and economical locations for industry, are going to be left out when the census taker comes along. The city planner cannot do it all! You men have got to help—and, after all, 90 per cent of it should be in the lap of the city engineer anyway.

—From a paper presented at the annual meeting of the American Public Works Association at Atlanta, Ga., October 4-6, 1937.

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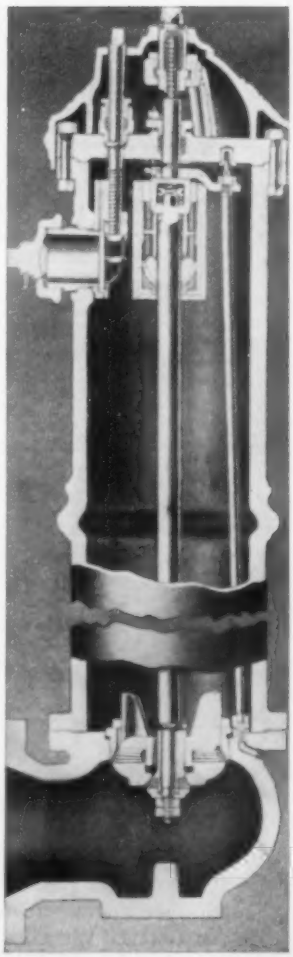

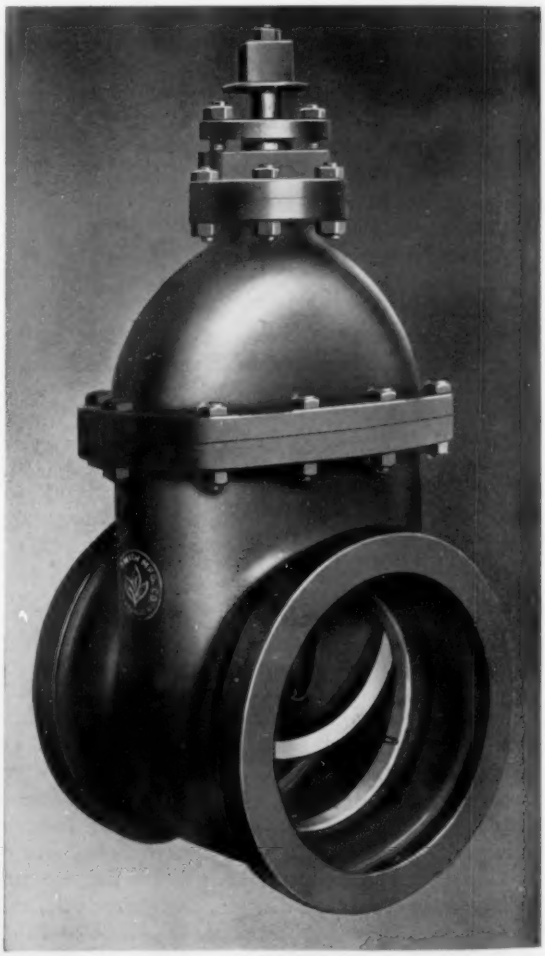

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Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

BURNING OF LAST KALAMAZOO BOND

On left, Mayor Arthur L. Blakeslee, putting match to last bond held by the retiring mayor, Paul H. Todd, who is still a member of the City Commission

Burning Their Debts Behind Them

KALAMAZOO, MICH.—On November 8, 1937, the incoming Mayor put a match to the last canceled bond of this city, held by the outgoing mayor. The ashes have been sealed in a glass tube by a glass blower, and now repose in the frame of a picture portraying the event.

Kalamazoo, a city of over 50,000 inhabitants, is one of the few in the United States to be free of general bonded indebtedness. Its pay-as-you-go policy started with the inauguration of a commission-manager government in 1918. The new government inherited among other things a bonded indebtedness of nearly a half-million dollars, but with the idea of running the city in the most businesslike manner possible, it began at once to reduce the debt, sinking 23 per cent of its first budget into payments for bonds and interest due. The tax rate had been 8.5 mills on a $49,000,00 assessed valuation under the previous form of government, when the Council borrowed to keep down the immediate tax rate. The new nonpartisan Council boosted the rate of 13.5 mills instead of maintaining a deceivingly low tax rate; initiated a detailed annual budget with strict control of appropriations; and adopted a long-term plan for municipal expenditures, building up anticipatory cash reserves.

The pay-as-you-go policy has remained in force even through the depression, except for an issue of emergency relief bonds amounting to $295,000 floated in 1932. The financial position of the city was so secure, however, that these bonds were retired within five years. Since 1920 the debt reduction has allowed tax reduction, the average rate for the last ten years being 10.8 mills, and for the last four years 9.775 mills. By 1936 the valuation of the city had increased over 20 million dollars.

Although Kalamazoo has been economical, city improvements have not been impeded by any means. The city has constructed a beautiful new city hall costing over half a million dollars; it has acquired and operated a 300-acre airport and two municipal golf courses, built bridges, motorized the fire department, and purchased and improved several large park sites and playgrounds. It has made large additions to the city lighting plant and the water works, and has purchased and operates its own asphalt plant. The city has financed and paid its portion of several million dollars' worth of pavements, sanitary sewers, storm sewers, and other improvements.

Kalamazoo plans ahead, sets up reserves and meets expenditures when the plans culminate. It has a business administration patterned after a large corporation, with the City Manager as the general manager, the Commission as the board of directors, and the selection of employees under a merit system. Such an administration attracts to the Commission business men of high standing and ability. The present Commission, composed of seven men, includes four presidents of important industrial concerns, one industrial vice-president, one business vice-president and one merchant.

E. C. RUTZ,
City Manager.

Flood Haven

NEW ALBANY, IND.—Within the last few months, a new residential section has taken shape at New Albany. "Flood Haven" some have called it, although it will not be formally named until all the work is finished. It might fittingly be named "Flood Haven," however, since all its occupants, thanks to the Red Cross, Government relief agencies, the city government, civic and sympathetic organizations, and public-spirited citizens, have found security against a recurrence of the disaster which swept away their homes shortly after the turn of 1937.

Fearful lest the mighty Ohio River visit its wrath upon them again, sixteen fami-

CLOSE-UP OF THE TYPE OF HOUSE BUILT IN THE NEW ALBANY SUBDIVISION

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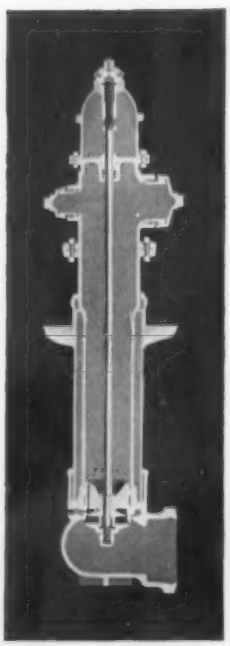

● Fires multiply in cold snaps. People push their furnaces, light faulty fireplaces, start up rusty stoves. Fires are worse in cold weather. Firemen are hampered by ice and snow, winds are high, houses are dry.

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lies have traded—even—what was left of their old homes and lots in the flood zone for modern houses in the new settlement. No strings were attached to the deal, and there was no drawn-out, tiresome procedure. Merely by deeding over to the New Albany Housing Authority, which was created purposely for this undertaking, all that remained of what they owned in the restricted area, these sixteen families automatically became lot owners and eventually home owners in the new suburban development, far removed from the danger zone. The American Red Cross, which gave the plan hearty backing from the start, has spent upward of $20,000 for the sixteen dwellings, built under private contracts at costs ranging from $900 to $1,900 each. The awards were made as nearly as possible commensurate with the losses each family suffered, and, of course, the number of occupants to a house had to be given consideration.

Hardly had the flood waters receded before public officials and civic-minded persons, with Judge John M. Paris of the Floyd County Circuit Court taking the lead, mapped a housing program to take care of those who lost virtually all they had. Sounding out the Red Cross, the Government agencies and other interested parties, a committee was named, land was selected, and a drive was launched to raise funds for the purchase of the site at a cost of $5,000. With a $500 flood donation from the Allegheny Bar Association of Pennsylvania as a nucleus, it didn't take long for this committee to raise the balance among manufacturers and merchants of the city. With the goal in sight, the local post of the American Legion turned over its check for $1,000 received from its Indiana headquarters for flood relief work, and the drive went over the top. Meanwhile, the City Council acted, creating the Housing Authority to transact the business.

Then the WPA appeared on the scene, putting in sidewalks, streets, gutters and sanitary and storm sewers. Installation of electricity, gas and water followed at no cost to those who were to occupy the homes. When everything is finished and these families settle down to their new quarters, they will owe no one except the tax collector.

The city's plans for utilizing the lowland property abandoned by these people are vague at this time. All of it is situated in the immediate flood danger zone. By restricting this area, city officials hope to discourage any attempt to rebuild there. At some time in the future, if the plans ever materialize, the land will be taken over for park purposes.

REED H. KELSO,
Executive Secretary, Housing Authority.

Salary Boosts Appear on More City Payrolls

SALARY increases, some of them final restorations of depression-cuts, others designed to help city employees meet rising living costs, continue to appear on city payrolls, as reported to the Municipal Finance Officers' Association of the United States and Canada.

Two Kentucky cities—Frankfort and Bowling Green—raised official salaries this month. Frankfort increased the salaries of the new city officials, boosting the Mayor from $1,000 to $1,800 per year. Bowling Green exactly doubled the salary of its Mayor, from $1,200 to $2,400. Fort Worth, Texas, increased its municipal payroll by $50,000 for the 1938 fiscal year starting October 1. Three hundred and fifty employees received an average 10 per cent increase. Paterson, N. J., on the same date handed out full pay-envelopes to everybody from the Mayor on down, for the first time since 1932.

Across the Canadian border, Toronto and Calgary report 1937 salary restorations.

Civic Agencies Aid Housing by Spotting Blighted Areas

CIVIC organizations in several cities are contributing their part to the low-cost housing drive by aiding in the discovery of sub-standard housing conditions, according to the National Association of Housing Officials. The Metropolitan Housing Council in Chicago, voluntary citizens' housing organization, has recently inaugurated the inspection and reporting of bad housing conditions, following the lead of similar organizations in Philadelphia, New York, Pittsburgh, Cincinnati and Washington.

Why Not Monthly Tax Bills?

The Proposition

LET us say, says G. La Monte Graw, in the *Florida Municipal Record*, that a small home owner receives tax bills aggregating $52. If his salary is $150 per month, he must pay out more than two weeks of it—if he pays the bill. Usually he drops the bills into a drawer, wondering where he can raise that much.

When April 1 rolls around, the tax remains unpaid. The government, thereby, loses money, and the home owner finds his tax debt is now a tax certificate, drawing up to 18 per cent interest. The result is that another knocker is in our midst. Also, the removal of this property from the tax roll has placed a heavier burden on the man able to meet his tax obligations promptly.

Modernization of our tax-collecting methods, therefore, would go far toward clearing up this situation, and would solve many tax problems.

If, instead of the $52 tax statement rendered, there had been monthly bills of $4.50 each set up in the family budget along with the milk, mortgage, lights and water, the tax would not seem unreasonable, and it is fairly certain that the housewife would see that this small sum was paid to protect her home.

There are some who might object that the sending of monthly or quarterly bills, together with the required bookkeeping, would greatly increase the cost of operation. This is hardly true. Because of the discounts offered, many would pay promptly, as they now do. The persons who would benefit by installment paying are the ones who have not been paying.

More Cities Do It

ONLY 80 of the 309 cities in the United States with a population of 30,000 or more are still collecting taxes in a single annual payment. Exactly 150, or nearly one-half of these cities, are collecting in two installments, 11 in three installments, 53 in four installments, and 15 in five or more installments. There are seven cities permitting payment in ten installments: Boston; Cincinnati, Dayton, Ohio; Brockton, Somerville, and Waltham, Mass.; and Stockton, Calif. Three cities collect taxes in twelve installments—Charlotte, N. C., Kalamazoo, Mich., and Pittsburgh, Pa. Three cities which collect in six, seven and eight installments respectively, are Grand Rapids, Mich., Madison, Wis., and Saginaw, Mich.

OLNEY L. CRAFT,
Associate Director, Municipal Finance Officers' Association.

A Plan

THE Burroughs Thrift Plan for payment of taxes provides an answer to the delinquent tax problem. It is based on the same principle as Christmas Savings Clubs and Vacation Savings Plans in banks. In fact, realizing the need of home owners for an easier method of accumulating tax payments, some banks have sponsored Tax Payment Savings Clubs. It provides for the collection of taxes in easy monthly or weekly installments similar to the method that has been successful in collecting for automobiles, radios, household appliances, etc.

The city or county simply opens tax deposit accounts, accepts tax deposits, and issues receipts for them, crediting a Tax Deposit Account in the general ledger with each day's receipts of such deposits.

When a taxpayer's total deposits equal the full amount of taxes due, the amount is transferred as a credit to the tax roll, and an official tax receipt is issued. To our knowledge, no changes are required in state laws or local ordinances, nor in the regular tax roll or tax receipt forms.

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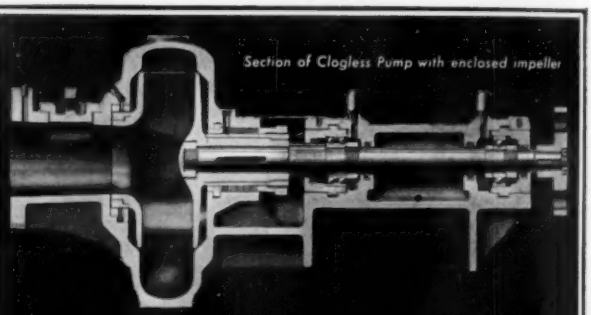
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Planning the Baltimore–Washington–Annapolis Area

A COORDINATED program for suburban growth, land use, and expansion of transportation and public utilities in the region between Baltimore and Washington and Annapolis is recommended in a report released on November 21, 1937, by the Maryland State Planning Commission, a map from which is reproduced on the front cover of this issue.

Study of the area revealed, in varying degrees, dwindling agricultural values in soil-depleted areas, planless spreading of suburbs, growth of bay-front developments without regard for public beaches or necessary public utilities, ugly structures along inadequate principal highways, and other related disadvantages.

Immediate construction of two new parkways between Washington and Baltimore, and Washington and Annapolis is one of the major recommendations of the Maryland Commission. In addition, a coastal parkway is urged from Annapolis to Solomon's Island.

Anticipating that 80,000 people and 40 square miles of suburbs will be added to the suburban area by 1950, the Commission suggests that the form of growth consist of suburban communities separated by intervening open space. The character of growth, says the report, should be regulated by subdivision control, zoning, building codes, and open spaces to prevent over-development.

For purposes of forest management, recreation and wild life readjustment, it is recommended that up to 100,000 acres be acquired by state or Federal agencies in the coastal section of the area, and that a number of beaches along Chesapeake Bay should also be purchased.

The State Planning Commission also recommends that an immediate study be made of the feasibility of permanently preserving taxable semi-public open spaces through partial "futurization" of taxes, the aim being to discourage inappropriate use or too-early subdivision of such open spaces, or to provide, by these tax liens, accrued funds for public purposes.

To carry out the program outlined in the report, the Maryland Commission declares that the following three main factors must be considered:

LEGISLATION

(1) State legislation creating or extending the jurisdiction of local planning agencies, in the territory outside the three cities.

(2) State enabling legislation giving cities, counties and communities in the Area more adequate authority to implement planning agency recommendations by local laws.

(3) State enabling legislation to extend the powers of state and local administrative departments.

(4) State and Federal legislation required to permit necessary state and Federal developmental and financial assistance to Area projects.

PLANNING AGENCIES

(1) Extension of jurisdiction of the Maryland National Capital Park and Planning Commission and the Annapolis Planning Commission, and establishment of a Baltimore Metropolitan Commission, so as to cover, in connection with other existing planning agencies, the whole B-W-A Area.

(2) Establishment of a Coordinating Committee, sponsored by the Maryland State Planning Commission, to assume responsibility for coordinating Area-wide planning proposals.

A FISCAL PROGRAM

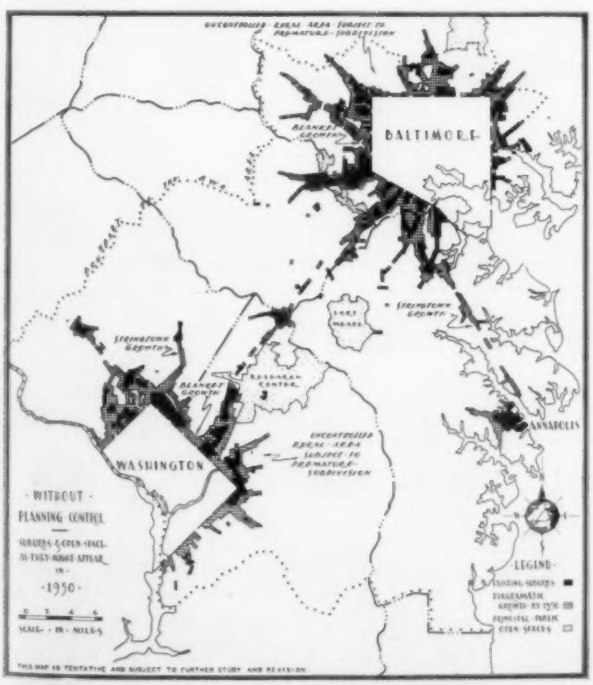
The Coordinating Committee, in conjunction with other interested planning and administrative agencies, should prepare a fiscal program for a definite ten-year period indicating priorities for various projects, and the proportion of funds to be furnished by local, state, and Federal agencies.

Personnel

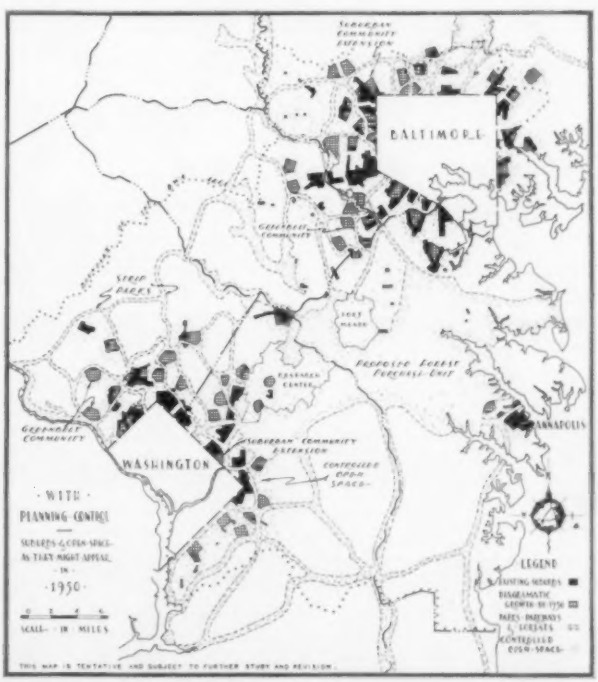
The above-mentioned report was prepared by the Maryland State Planning Commission, the members of which are: Abel Wolman, Chairman, Member at Large; Nathan L. Smith, State Roads Commission; Helena Stauffer, Member at Large; Joseph I. France, State Department of Health; William L. Galvin, Board of State Aid and Charities; Thomas F. Hubbard, Associate Consultant.

Of the special Sub-Committee on the Baltimore-Washington-Annapolis Area, Joseph W. Shirley of the Commission on City Plan of Baltimore is Chairman—the other members being F. W. Besley, State Forester, State Department of Forestry; Harry R. Hall, Chief Engineer, Washington Suburban Sanitary Commission; Thomas F. Hubbard, Associate Consultant, National Resources Committee; John Nolen, Jr., Director of Planning, National Capital Park and Planning Commission; Philip B. Perlman, Attorney; Irving C. Root, Chief Engineer, Maryland-National Capital Park and Planning Commission; Nathan L. Smith, Chief Engineer, State Roads Commission; Amos W. W. Woodcock, Member, Company for the Restoration of Colonial Annapolis; and John J. Lang, Assistant Engineer, Bureau of Plans and Survey, Baltimore.

The consulting staff provided by the National Resources Committee was: Earle S. Draper, Consultant; Malcolm H. Dill, Planning Technician; and Raymond F. Leonard, Planning Technician.



This shows what the 1950 suburbs would probably be like if left to extend typical "blanket growth" and "stringtown ribbon development"



This shows roughly the way suburbs might be located in 1950 if guided by planning and development controls

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Traffic Control and Facilitation

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Paul L. Green, Chairman; George W. Barton, Kenneth W. Mackall, Miller McClintock, Robert A. Mitchell, William R. McConochie, Arnold H. Vey, Joseph L. Wehmeyer, William A. Van Duzer, Thomas J. Seburn, Roger L. Morrison, Otto K. Jelinek

BESIDES STRAIGHTENING TRAFFIC (SEE RIGHT), LANE MARKINGS GET 2 PER CENT MORE CARS IN SAME SPACE

Packing Them into the Business District

By D. GRANT MICKLE
Planning Engineer, Michigan State Highway Department;
and
Manager, Traffic and Transport Department, Jensen, Bowen & Farrell, Engineers, Ann Arbor, Mich.

A MERE crowd is not congestion; in fact, the sign of a healthy, prosperous community is a mass of humanity in the business district. The problem is to facilitate the movement of this mass so that the individuals achieve their purposes as quickly and agreeably as possible. If the average economic cost of traffic delays is 0.89-cent per vehicle-minute, then the vehicle users of the city of Detroit, for example, lose or waste $10,184,063.65 worth of time per year, despite all the knowledge of conditions and the means for improving them that have recently been accumulated there.

Knowledge of street-traffic conditions is factually presented, analyzed and interpreted, with conclusions and recommendations, in the 310-page published report of the Detroit Traffic Survey undertaken jointly by the Michigan State Highway Department and the Detroit Police Department with WPA funds. The project was under the general direction and administration of State Highway Commissioner Murray D. Van Wagoner.

Means readily at hand for controlling street traffic consist of: (1) lane markings; (2) traffic signals; (3) parking space; (4) mass-transportation facilities.

The location of congestion here considered is the central business district, which is the universal traffic problem of all communities, from Great Neck Plaza, N. Y., with a population of 2,000, to the city of Detroit, with 1,600,000. The daytime increase in population in this comparatively small district of Detroit amounts to 87,750 persons.

The simplest form of control is the lane marking which tends to develop a uniform speed. In a direct comparison between a laned and an unlaned section of the same street, it was found that 9,354 vehicles moved in the laned section while 9,192 moved in the unlaned section. The best results were obtained with lanes 10 feet wide on a street from which commercial traffic is excluded. No lanes should be less than 9 feet wide from center to center of markings. Center lines should be solid; other lines, which may be crossed by traffic, should be broken or indicated by metal markers.

Stop and Go

Traffic signals throughout Detroit are virtually standard in the design of their elements, though they are under the administration of three separate agencies—the city, the county, and the State Highway Department. They are three-color on individual posts and are one-way to four-way.

The traffic-actuated signal is particularly advantageous where a heavily traveled artery is crossed by a street of considerably less importance. It should always be remembered that the purpose of automatic signals is to safeguard and facilitate the flow of traffic, and not to delay it unduly.

Flexible-progressive control is in operation on a number of thoroughfares and it is recommended that this type of traffic-control signal system be improved and extended to include all heavily-traveled arteries. The successful operation of the system requires the cooperation of the drivers in maintaining the designated speeds. It is suggested that this cooperation can be obtained by indicating the right speed on signs naming the speed, and by the use of a flashing green indication to define the limits of the flow band.

By Street Car and Bus

In addition to 488,000 private automobiles registered within the city limits, there is a mass-transportation system which, being municipally owned, is perhaps more extensive than would be the case under private ownership. In many instances this system extends into sparsely-settled outlying sections.

The Department of Street Railways operates 1,009 street cars on 393.3 miles of single track, and 683 buses and trolley coaches on 211.3 miles of street. Of the 24 street lines, 17 of them pass through the central business district, as do 10 of the 28 motor-coach routes.

This system, as with similar systems throughout the country, has had to compete with increasing severity with automobiles now owned by one in every four persons living in the city. The old vacation and holiday peaks have become valleys. Highly significant is the fact that, though the number of rides per person has dropped, total patronage has remained constant, owing to population increase. As the public vehicles are now used chiefly to go back and forth to business and shopping, largely in the central business district, a great proportion of the people carried by the system are dumped into the business district in the morning and hauled away from it at evening. There is also a considerable movement of workers who must pass through the central business district going from home to the industrial plants.

Of the persons leaving the business district between 5:00 and 6:00 P.M., 58 per cent are carried in mass-transportation vehicles, and 22 per cent of the day's

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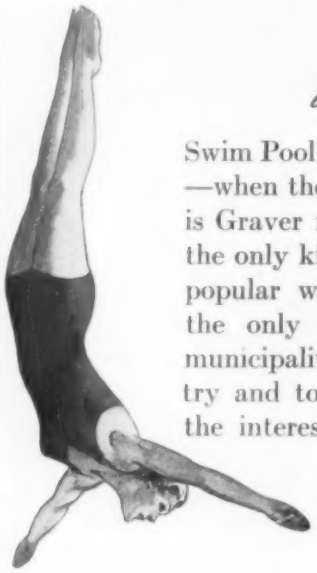

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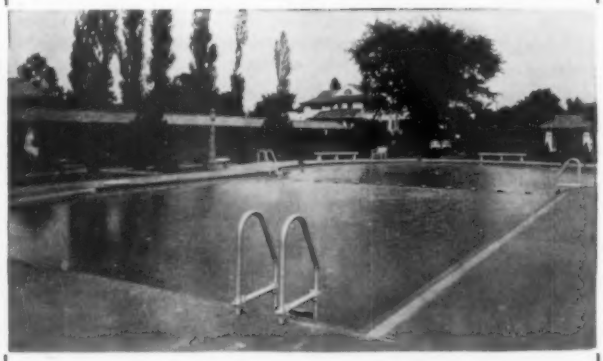

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carrying business is performed in 8 per cent of the day. The elimination of trolleys would require the addition of 1,184 buses, and the elimination of both trolleys and buses would require the addition of 18,100 automobiles to carry the same persons. The streets could not accommodate them. It is probable that greater patronage would be accorded the mass-transportation vehicles if it were generally understood that on the average they take only five minutes longer to make the average trip than does the private automobile.

And after the trip is made and the five-minute saving achieved, what is done with the private automobile?

The parking situation is so serious that it is recommended that daytime parking in the retail area be prohibited. There are in all only 11,522 spaces available at the curbs, of which only 2,749 permit unlimited parking. The potential demand is for as many as 50,000 spaces, with a normal of 20,000 at least. While there is available a sufficient storage capacity in garages and lots, the major demand is for curb space. If 20-minute parking were permitted and were capable of enforcement, 115,458 automobiles could be accommodated in the business district during the 14-hour day. If one hour is allotted to each car, the number of visits in these spaces would be 38,486, ample to handle present requirements.

DETROIT'S DEPARTMENT OF STREET RAILWAYS OPERATES 1,081 OF THESE 21-PASSENGER FORD BUSES

Only 216 Automobiles Cause Yonkers' Jam

By T. T. McCROSKY
Planning Director, City Planning Board, Yonkers, N. Y.

A TOTAL of 1,113 cars park in the business district of Yonkers, N. Y., during a typical business day, from 8:00 A.M. to 6:00 P.M. Only 216 cars, or 19 per cent, remain longer than the 60 minutes allowed. Yet these violators monopolized more available parking time than the 897 cars whose drivers obeyed the law. The average time of legal parkers was only 21 minutes, whereas illegal parkers averaged one hour and 46 minutes. Thus each violator, on the average, took up space that could have been occupied by five legal parkers.

The foregoing figures and principles were adduced in a recent survey. Moreover, the City Planning Board finds that there has been no substantial change in the parking situation since 1932, when the same percentage of cars violated the 60-minute regulation for the same average time.

In the opinion of the Planning Board, enforcement of the law so as to give space for 2¼ times as many legally parked cars would provide all the short-term curb-parking space needed. It would take care of 1,100 additional cars. Violators staying longer than 60 minutes should be required to leave their cars in garages or pay-parking lots, which have ample capacity to accommodate them.

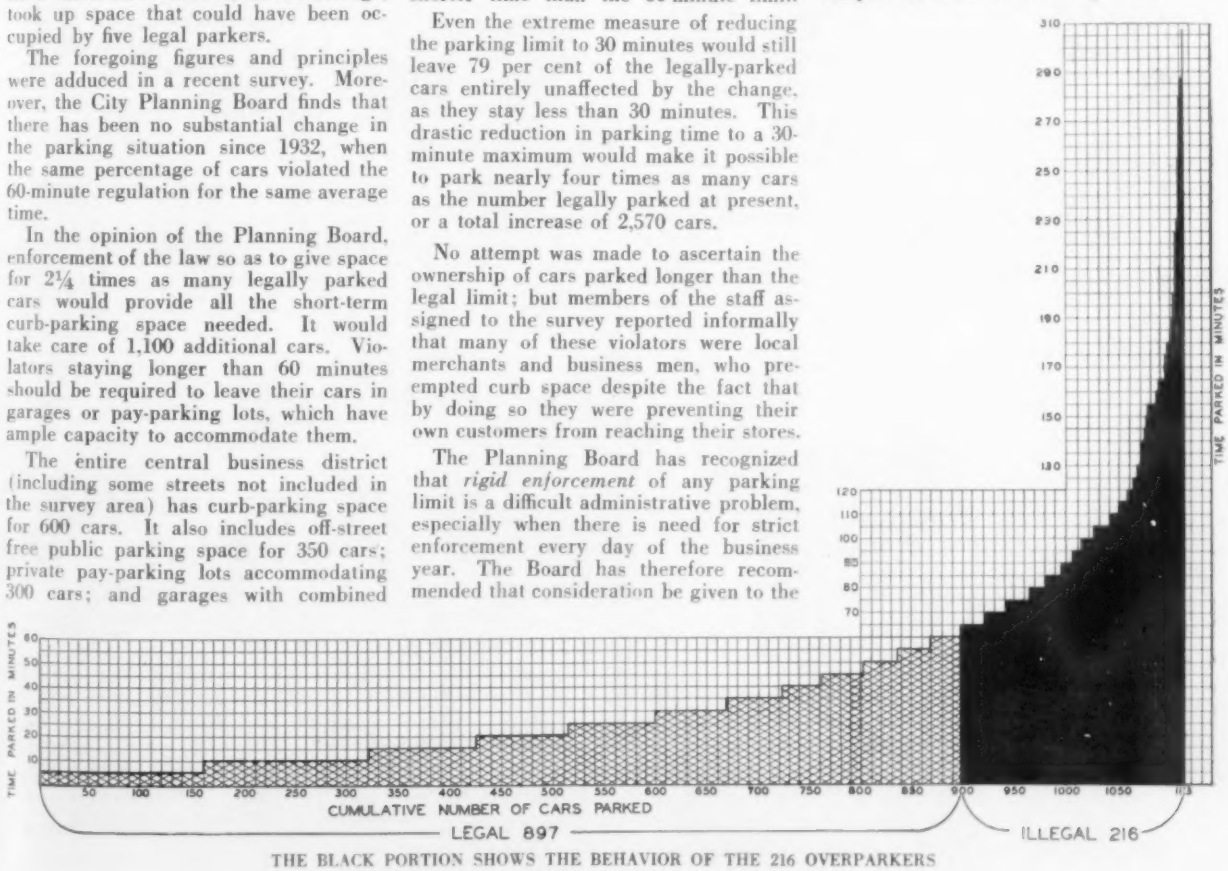
The entire central business district (including some streets not included in the survey area) has curb-parking space for 600 cars. It also includes off-street free public parking space for 350 cars; private pay-parking lots accommodating 300 cars; and garages with combined capacity of 200 cars. Thus, out of a total of 1,450 car spaces, nearly 60 per cent are off the street.

However, if still more curb-parking space for short-term parkers should be needed, it would be possible to shorten the legal limit to 45 minutes. This would give curb space for over three times as many legally parked cars. It would mean the elimination from the curb of less than 10 per cent of the cars now staying a shorter time than the 60-minute limit.

Even the extreme measure of reducing the parking limit to 30 minutes would still leave 79 per cent of the legally-parked cars entirely unaffected by the change, as they stay less than 30 minutes. This drastic reduction in parking time to a 30-minute maximum would make it possible to park nearly four times as many cars as the number legally parked at present, or a total increase of 2,570 cars.

No attempt was made to ascertain the ownership of cars parked longer than the legal limit; but members of the staff assigned to the survey reported informally that many of these violators were local merchants and business men, who preempted curb space despite the fact that by doing so they were preventing their own customers from reaching their stores.

The Planning Board has recognized that *rigid enforcement* of any parking limit is a difficult administrative problem, especially when there is need for strict enforcement every day of the business year. The Board has therefore recommended that consideration be given to the installation of parking meters on the principal streets near the center of town. The Board is of the opinion that meters would be effective in discouraging most of the people who park their cars at the curb with the tacit intention of remaining longer than 60 minutes. Parking meters should thus go a long way toward achieving the large increases in parking space for short-term shoppers, which our survey shows to be theoretically possible by complete elimination of over-parkers.



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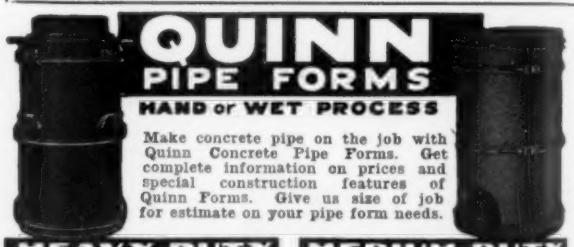

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning: The Laws, Administration and Court Decisions During the First Twenty Years"

Zoning—Public Property

MICHIGAN.—*Taber v. City of Benton Harbor*, 274 N. W. 324 (Supreme Court, June 7, 1937).—Where the zoning ordinance of the city of Benton Harbor prohibited buildings in excess of a certain height in certain zones, the city was bound by, and could not disregard, such ordinances and erect a water-tank tower in excess of the prohibited height in pursuance of its duty to maintain an adequate water system, since the city was acting in the enterprise in a proprietary rather than a governmental capacity.

EDITOR'S NOTE.—This case follows the doctrine stated in *Puhr v. Kansas City*, (summarized in our Notes for February, 1936) and *O'Brien v. Town of Greenburg*, 239 App. Div. 555, 226 N. Y. 582 (digested in our Notes for February, 1934; the case in the upper court is decided without opinion). In that case the town was seeking to erect an incinerator for the disposal of its garbage and that of several villages, in a residential district where this use was forbidden. The town urged that in so doing it was acting for the public good, in fulfillment of a governmental duty, and therefore was not bound by the zoning ordinance; but the Court decided that in erecting the incinerator the town was acting in its corporate or governmental capacity and equally with all other persons, whether individual or corporate, was bound by the terms of the ordinance.

The distinction between the actions of a municipal corporation in its private and its governmental capacity is an old one in the law, and has been applied in many ways, among which is liability for negligent injuries; a municipality being very generally held to be free from responsibility for the negligence of its agents in the case of its parks, and in extinguishing fires, but liable for negligent injuries inflicted in the conduct of enterprises like water works, in which it receives compensation. The distinction so applied has been much criticized of late, and there are now many departures from it, by statute and judicial decision. The distinction has been stated by McQuillan on Municipal Corporations (Second Edition, Section 364) as follows:

"As a municipal corporation has a dual capacity . . . it exercises two kinds of powers, namely, public and private; public, as an instrumentality of the state in government, and as a local governmental organ in supplying community needs, comforts and conveniences; private, as a corporation, legal entity or artificial personality. In the exercise of powers of a governmental nature, either as the agent of the state or as a local public organ, it acts in the capacity of a sovereign and is not subject to private action for torts (except as modified by legislation, and in some instances by judicial decision in sertain states), since it has always been the doctrine that negligence cannot be imputed to a sovereign. . . . In the exercise of its private powers, generally the municipal corporation is treated as a private corporation or individual and is subject to all the obligations and is entitled to all the benefits of the private law."

In a recent article, Edwin M. Bassett has explained this doctrine as applied to zoning as follows:

"It is sometimes said that planning has to do with public land and zoning with private land. Nothing could be further from the truth. Parks are zoned for height and area. Sites for public buildings and public reservations are zoned for height, area and use. Councils which establish zoning regulations should be the first to comply with their own rules. Although municipalities throughout the country are quick to do this, it sometimes happens that a government, usually the state, county or national government, asserts that it is not bound by a local ordinance of this sort.

"This is true in so far as the community needs a building that transcends the zoning regulations. If the Federal Government needs a post office in a residence district as shown on the zoning map, it can have its way. But if the subordinate officials refuse to comply with the yard requirements of the district, they cannot have their way. The superior right of the government desiring to disregard the zoning ordinance is limited to those things that are necessary for the community. That governmental body having the right of decision will usually be supported by the courts, but in a plain case of disregard out of whim or without reason, the courts would undoubtedly enjoin the subordinate officer. Where a town established a residence district excluding business and all other sorts of buildings except residences, churches and schools, a fire district within the town determined on a location for a fire house within the residence district and was upheld by the Court on the ground that the officials of the fire district had the power to make the determination and they acted for the welfare of the community."

Change of Non-Conforming Use

NEW JERSEY.—*Schaible v. Board of Adjustment of Milburn Township*, 194 Atl. 388 (Supreme Court, October 5, 1937).—Where a warehouse was used to store building materials when the zoning ordinance prohibiting such use in the district in question was passed, a warehouse man is entitled to a certification of occupancy for the storage of lubricating oils, especially in the absence of a showing that the proposed use contemplated storage of harmful or dangerous materials; since the proposed use was not such a new and different use as to warrant a denial of the certificate.

Building materials normally consist not only of lumber, bricks, stone and iron, but of paints, varnishes, and many other substances used in building construction.

Constitutional Aspects of the Billboard Situation

Albert S. Bard, Counsel to the National Roadside Council, New York, writes to this department as follows, in further comment to that of Mr. Hartman in the December issue upon the billboard notes in the October issue:

The Troy billboard decision (*Matter of Mid-State Advertising Corporation v. Bond*, 274 N. Y. 82) in which the New York Court of Appeals, five to one, holds unconstitutional a city ordinance which bans all billboards everywhere in the city except boards advertising the sale of the real estate on which the boards are erected, or advertising goods sold on the premises, is one of these bits of gratuitous judicial legislation which the courts find it so easy to indulge themselves in. As a matter of constitutional law, no matter what the Court says, Judge Finch, dissentient, is correct and the majority wrong. It may be noted in passing that four justices in the Court below, as against one dissentient, thought the ordinance valid.

Like many another court that has passed upon billboard legislation, the Court of Appeals failed to distinguish between private esthetics and public esthetics. Judge Finch clearly saw the distinction.

Curiously enough, no mention was made in the arguments either of counsel or of the Court of the explicit provision in the General City Law, §21 (added by L. 1913, Chap. 247) that "the terms 'public or municipal purpose' and 'general welfare' (to promote which the Legislature had authorized the local authorities to legislate) shall each include the promotion of beauty." This is an explicit legislative recognition of public esthetics as a ground for the exercise of the police power, and a delegation of such power to the city to be exercised for such purpose.

Of course, such a legislative declaration and delegation cannot stand in the face of constitutional prohibitions. But, as Judge Finch points out, prohibiting a landowner from renting his land to a billboard concern to advertise someone else's wares upon, is not such an interference with the private owner's enjoyment of his land as to constitute a "taking." Nor is such a general prohibition "arbitrary, capricious or discriminatory" treatment as between landowners or others concerned. Commenting upon the admitted constitutionality of excluding billboards from residential districts, Judge Finch held that while such exclusion may be more desirable in residential districts, the extension of the prohibition to business districts is not unreasonable. "Beauty in such areas may not be so obvious, but that does not prevent the city from restraining additional ugliness."

The Troy decision seems to support (and your note, by inference, seems to justify) the doctrine that billboards may be excluded from some zones, but not from all, if the exclusion be a part of a general zoning plan. To concede this legislative power with respect to some districts but deny it as to others, as a matter of constitutional limitation, seems chopping pretty fine. Moreover, the United States Supreme Court says that outdoor advertising is in a class by itself and may be subject to special regulation (*St. Louis Poster Advertising Co. v. St. Louis*, 249 U. S. 269; 274. *Packer Corporation v. Utah*, 285 U. S. 105; 110). Restrictions upon land uses are no less restrictive, and therefore no more a constitutional exercise of the police power, when put in the form of a zoning ordinance than when put in the form of mere regulation. The police power is not divided into watertight compartments so that a restriction upon a land use issuing from one compartment is good, while the same restriction issuing from another compartment is bad.

The constitutional advantages which zoning restrictions upon land uses have over mere regulation is that under zoning as practiced the creation of different classes is easier, the allocation of particular properties to the several classes is more just, and room is left to deal with exceptional cases. Zoning restrictions upon the private owner thus more easily avoid the charge of being arbitrary in their incidence. But this is of little or no advantage in the case of a unique class subject to its own special restrictions, like outdoor advertising.

Of course the correct rule is that laid down in the great Massachusetts decision (*General Outdoor Advertising Co. v. Department of Public Works*, 289 Mass. 149), which says in effect: Here on the one hand is business with its general right to advertise. On the other hand, here are the people who have the right to be let alone, to enjoy themselves, and to be free from being hounded by the advertisers. Both rights cannot be fully exercised, for they conflict. In this conflict the Legislature has the power to set the bounds within which each right is to be exercised.

The Troy decision seems to present a case where a judicial error should be judicially corrected—always the best way to correct them, but too seldom indulged in by the offending court.

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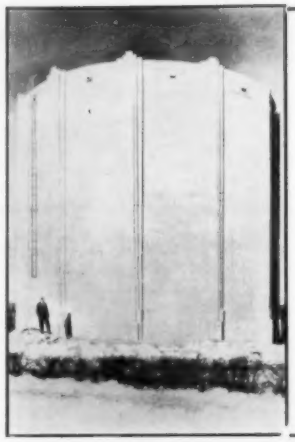

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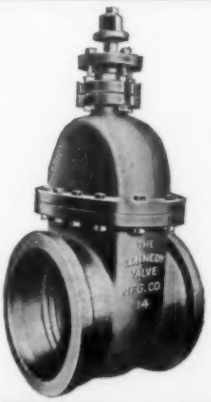

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The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held not liable for negligent operation of automobile by city employee on CWA project, the accident occurring while he was making personal use of the car in going to and returning from lunch (Indiana Appellate Court: *City of Elkhart v. Jackson*, 10 N. E. 2d, 418).

Paying patient in municipal hospital held entitled to recover for injuries resulting from negligence of employees (Oklahoma Supreme Court: *City of Okmulgee v. Carlton*, 71 Pac. 2d, 722).

Village held entitled to recover against highway contractors for damage to water mains resulting from negligent blasting operations (Vermont Supreme Court: *Village of St. Johnsbury v. Cenedella*, 194 Atl. 382).

City held not liable for injury caused by negligent operation of a garbage truck, garbage collection being a governmental function (Texas Court of Civil Appeals: *City of Ft. Worth v. George*, 108 S. W. 2d, 929).

City held liable for injury to motorist whose car collided with a protruding manhole in street (Tennessee Supreme Court: *Jones v. City of Knoxville*, 108 S. W. 2d, 882).

City held not liable for injury to workman repairing municipal auditorium if charter limited authority of city to use the auditorium for public purposes, although some profit may have been derived through its rental for private purposes (Georgia Court of Appeals: *City of Atlanta v. Garner*, 192 S. E. 841).

City held liable for injury to child who fell into open-mouth catch-basin used to drain street, on theory of dangerous form of drain's construction (Tennessee Court of Appeals: *City of Knoxville v. Camper*, 108 S. W. 2d, 787).

City foreman injured when defendant's truck negligently struck rope stretched across a street while the foreman was working on a tree, held entitled to recover against defendant (Michigan Supreme Court: *Haszczyn v. Detroit Creamery Co.*, 275 N. W. 211).

City held not liable for injury to child pushed by other children into hot tar that had just been spread upon street surface, although no barrier had been erected (New York Supreme Court, Kings County: *Greenberg v. City of New York*, 298 N. Y. Supp. 687).

Bond Issues

Pendency of refunding proceedings held no defense to mandamus to compel payment of matured interest on bonds, but, under statutory and charter provisions, payment out of general funds held not proper on exhaustion of interest fund. City held not entitled to diminish interest fund to reimburse general fund for interest payments previously made from latter. Bondholder suing to compel payment of accrued interest held entitled to priority of payment over other bondholders later intervening in suit (Michigan Supreme Court: *John Wittbold & Co. v. City of Ferndale*, 275 N. W. 225).

Business Regulations

Ordinance limiting hours during which barber shops may be open upheld as facilitating sanitary inspection by city (United States District Court, Southern District of Ohio: *Feldman v. City of Cincinnati*, 20 Fed. Supp. 531).

Civil Service

Under statutes, police chief held empowered to remove police officer although chief had no appointing power and removal was made effective as of a date prior to hearing (Massachusetts Supreme Judicial Court: *Duggan v. Justices of Third District Court of Eastern Middlesex*, 10 N. E. 2d, 61).

Condemnation Proceedings

Although property owner is entitled to damages for delay by municipality in prosecuting a condemnation proceeding, owner held not to have shown a right to damages on account of a year's delay of proceeding later dismissed (Illinois Supreme Court: *Roach v. Village of Winnetka*, 10 N. E. 2d, 356).

Contracts

Attorney held entitled to recover for special legal services despite certain informalities in his employment (New Jersey Supreme Court: *Stout v. City of Bayonne*, 194 Atl. 242).

Sewer contractor's bond under statute held vitiated by non-compliance with requirement for approval of sufficiency of surety by city treasurer (New Jersey Court of Errors and Appeals: *Heller v. City of Plainfield*, 194 Atl. 260).

Depositories

City held not entitled to preference in liquidation of insolvent depository bank, although statutory bond given by bank to secure deposits was for a smaller amount than the sum of deposits (United States District Court, Western District of Kentucky: *Commissioners of Sinking Fund, Louisville, Ky. v. Anderson*, 20 Fed. Supp. 217).

Federal Aid Projects

Federal statutes authorizing Federal aid to municipalities for construction of public works, to relieve unemployment, held constitutional (United States Circuit Court of Appeals, Fourth Circuit: *Duke Power Co. v. Greenwood Co.*, 91 Fed. 2, 665).

Home-Rule Cities

Home-rule charter, empowering city to regulate assessment and collection of taxes, held to support ordinance making taxes lien against taxpayer's property (United States District Court, Northern District of Texas: *In re Robertson*, 20 Fed. Supp. 270).

Libel

Newspaper article accusing police lieutenant of using municipal property for his own personal benefit, if untrue, held to support an action by him for libel (Massachusetts Supreme Judicial Court: *Fahy v. Melrose Free Press*, 10 N. E. 2d, 187).

Licenses

Ordinance increasing license fees payable by members of named professions, as a means of raising commitments with WPA, held invalid (Florida Supreme Court: *State v. Keller*, 176 So. 176).

Ordinances levying license taxes against truckers engaged in interstate commerce held invalid in the absence of statutory authority given the municipalities to impose a tax for the use of local highways (United States District Court, Western District of South Carolina: *Southern Fruit Co. v. Porter*, 20 Fed. Supp. 359).

Municipal Prosecutions

Affidavit charging gambling held sufficient without specifying street address where offense was committed (Ohio Court of Appeals, Lucas County: *City of Toledo v. Harris*, 10 N. E. 2d, 454).

Municipal Territory

Quo warranto proceeding to oust city from continuing to tax, etc., a large area of rural lands lying within the municipal boundaries but not benefited by inclusion, upheld (Florida Supreme Court: *City of South Miami v. State*, 176 So. 171).

Official Bonds

A treasurer's bond signed by sureties, but not by him, held not binding on the sureties. (Michigan Supreme Court: *Berlin Tp., Monroe County v. Neidermeier*, 275 N. W. 204). ED. NOTE.—By stressing the fact that the sureties in this case signed gratuitously, the Court intimates that a different holding might apply to paid sureties.)

Patrolman's official bond held not to extend to benefit of administratrix of person wrongfully killed by patrolman (Indiana Appellate Court: *Metropolitan Casualty Co. v. State*, 10 N. E. 2d, 419).

Official Wrongs

City held not liable for wrongs committed by police officers, etc., in causing arrests, etc. (United States Circuit Court of Appeals, Third Circuit: *Giordano v. City of Asbury Park*, 91 Fed. 2d, 455).

City held entitled to compel Treasurer to account for secret profits derived by him individually in the investment, etc., of municipal funds (Massachusetts Surpreme Judicial Court: *City of Boston v. Dolan*, 10 N. E. 2d, 275).

If Mayor received funds individually under an unlawful agreement for entry of judgment against his city, held that he could be made to account to city therefor in an equity suit brought for that purpose (Massachusetts Supreme Judicial Court: *City of Boston v. Santosuosso*, 10 N. E. 2d, 271).

Ordinances

Courts will not consider the motives of persons proposing ordinances nor of councilmen voting to adopt them, in determining the validity of such ordinances (United States District Court, Southern District of Ohio: *Feldman v. City of Cincinnati*, 20 Fed. Supp. 531).

Pensions

Charter provision for suspension of pensions while pensioner holds another office upheld (New York Supreme Court, Queens County: *Jones v. Valentine*, 298 N. Y. Supp. 802).

Poor Relief

Plaintiff city furnishing relief to relief worker residing in defendant city held entitled to reimbursement from latter, after deduction for work performed by the worker for the plaintiff city; the deduction being proper regardless of whether the worker was bound to work as a condition to receiving relief (Massachusetts Supreme Judicial Court: *City of Marlborough v. City of Lowell*, 10 N. E. 2d, 104).

Public Utilities

Public utility's right to terminate operations on expiration of unrenewed franchise held reciprocal to right of municipality to refuse to renew. But, even though the franchise does not provide for continued operation, a court of equity held to have jurisdiction to make reasonable order for operation until new service functions. Town's right to enjoin further use of streets, etc., by electric company, but to enjoin discontinuance of service within certain reasonable time, designed to afford mutual opportunity for convenient cessation of old service, upheld (Delaware Court of Chancery: *Town of Seaford v. Eastern Shore Public Service Co.*, 194 Atl. 92).

Special Improvements

Certificates of indebtedness issued for water mains, etc., held direct and general obligations of village under governing statute (Minnesota Supreme Court: *Bergman v. Village of Golden Valley*, 275 N. W. 297).

Streets

Town held not to have acquired title to land for street use by adverse possession (Mississippi Supreme Court: *Maxwell v. Town of New Hebron*, 176 So. 127).

Public rights in land established, but not opened, for use as street held subject to loss through long non-user of the right to open the street (Iowa Supreme Court: *Brewer v. Claypool*, 275 N. W. 34).

City held not to have inherent, but to have statutory, power to vacate streets on petition of abutters (Washington Supreme Court: *Petersen v. City of Seattle*, 71 Pac. 2d, 668).

READY TO "Clean-Up" ON LAW-BREAKERS

HERE'S Montreal's motorcycle squad — all brightly polished for "Clean-Up Week." But Montreal doesn't stop with only one house-cleaning week per year. As in many of the leading cities in Canada and the United States, every week is "clean-up week" against law breakers.

And these cities find Harley-Davidson Police Motorcycles particularly effective in cleaning up all traffic problems—curbing speeders, reckless drivers, "hit-and-run" maniacs, and in outwitting more hardened criminals. *No wonder Harley-Davidsons are first choice with the police of America's safest cities!*

Phone your nearby Harley-Davidson dealer NOW — to bring over a new 1938 model for your inspection — or write us for literature.

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THE POLICE MOTORCYCLE

When you write for that catalog, kindly mention THE AMERICAN CITY.

Improving Municipal Administration

Current Items from the Public Administration Clearing House

Uniform Codes the Way to Solve Trailer Problems

THE need for uniform action governing house trailers, to the end that both trailer travelers and the industry "will not be hampered by the existence of varying and contradictory regulations in the different states," is emphasized in a report issued by the New York Joint Legislative Committee on Interstate Cooperation and the Council of State Governments.

The trailer movement is recognized as a governmental as well as a social problem, with the most recent estimates predicting that more house trailers will be built in the United States this year than new ordinary dwellings.

The polyglot mass of state and municipal regulations on trailers is treated in the report, which is being distributed to motor-vehicle administrators, commissioners on interstate cooperation and other official bodies. Recognizing that to anticipate and pre-regulate what may happen in the next few years in trailer sociology would be "neither wise nor possible," the report offers the recommendations to point a middle way between "the injustice engendered by inertia and the chaos threatened by over-stringent and non-uniform regulation."

The chief proposals suggested are the following:

That state departments of health be empowered to make and enforce sanitary regulations for trailers and trailer camps. That the American Public Health Association or the Conference of State and Territorial Health Officers draw up a uniform code of sanitary regulations to provide for minimum trailer equipment, camp sanitation, and the keeping of trailer-camp occupant registers.

That revenues be supplied states and local communities through registration fees, rentals and licensing, to offset additional expenses incurred in protecting, regulating and providing facilities for trailers.

That trailer coaches be given the same legal protection against burglary and entry as is afforded dwellings and buildings. (New York has already enacted such a law.)

That states add to their motor-vehicle codes the following provisions: forms for accident reports especially designed for house trailers; restrictions on parking of trailers on highways; safety inspection laws; a trailer registration law; specific rulings on brakes, trailer dimensions, lights, etc.

Pioneer work toward uniformity in specific fields of the trailer problem has been done by several official and technical groups, the report points out. The American Association of Motor Vehicle Administrators and its Eastern Conference, for example, have adopted a uniform code for safety equipment requirements. Uniform provisions for full reciprocity with regard to registration and registration fees, safety equipment and sanitary equipment, the report comments, "are essential to the free migration of the trailer tourists." In most cases they represent an expansion of the provisions now found in laws of the states that grant reciprocity with respect to motor-vehicle registration and operators' licenses only.

Milwaukee Tries Civil Service Tests for Election Workers

CIVIL service tests for election workers are on their way to becoming a custom in Milwaukee, according to the Civil Service Assembly. A test for election inspectors and ballot clerks held last February resulted in appointment of 350 workers to serve in the spring primary and election. Regarded as successful for securing efficient workers at the polls, the test will be repeated to establish a new eligible list for 1938 and 1939. Writing, spelling, simple arithmetic tallying, filing, error-checking and civic information are the subjects included in the tests.

Cities Checking Income Tax Returns Report Sharp Assessment Rise

WASHINGTON, D. C., and Providence, R. I., between them have boosted their tax revenues by $1,000,000, and Cook County (Chicago), Ill., foresees a property tax rate reduction from $9.52 to $8.00 per hundred as the result of checking Federal income tax returns for local tax assessment. This fact was reported today as part of a study by the National Association of Assessing Officers.

Fred T. Allen, City Assessor of Washington, D. C., reports that he has added 4,500 new personal property accounts, extending taxes by some $400,000 through use of the three-year-old Costigan Amendment, the Federal provision that permits assessors to scrutinize income tax returns. In Providence, R. I., the Board of Assessors finds the assessment virtually doubled, with a gain of approximately $600,000 in tax revenues. The tabulation of Cook County, Ill., is incomplete, but Assessor John S. Clark estimates that the increase in personal property assessments in 1937, including tangibles and intangibles, will be approximately 80 per cent over 1936. Substantial increases are also shown in tangible personalty assessment, and it is estimated that the larger tax base will permit a reduction in the general property tax rate.

The National Association of Assessing Officers reports that only a few local assessors have been able to make full use of the Costigan Amendment provision, designed to forward assessment equalization. As originally passed in 1934, and revised in 1935, the Amendment contains a somewhat ambiguous passage that, by U. S. Treasury Department ruling, gives state tax officers alone the right to examine Federal income tax returns. Local assessors, therefore, must have the cooperation of the state tax agency to gain access to the records.

The N. A. A. O. report enumerates steps that must be taken by local assessing officers who wish to examine the returns, available for one year after they are filed, and explains how assessors find them useful in checking local tax evasion. It emphasizes the fact that the information must be carefully safeguarded. A fine of $1,000, or a year's imprisonment, or both, awaits any officer, employee or agent of any state or political subdivision who divulges such information for unauthorized purposes.

Relief Labor to Aid Cities at Outset of New Housing Programs

SINCE WPA has decided to keep demolition of unfit housing on the list of its approved projects, cities have a chance to economize on the first phase of whatever low-cost housing they plan when the new U. S. H. A. program swings into action the first of the year, the National Association of Housing Officials points out.

Demolition (or closing or repair of unfit housing) equal in amount to new construction is required under provisions of the Wagner-Steagall Act that created the United States Housing Authority. How cities are to interpret the phrase "equal in amount" will be announced along with other regulations on the new program, scheduled to be issued by U. S. H. A. before January 1. Meantime, says the National Association of Housing Officials, WPA labor stands available for clearance on both public and privately-owned land, so that useless and hazardous structures can be wrecked and cleared as part of a city's slum clearance quota.

WPA labor can be used without question for demolition on public sites. Projects involving work on private property must follow certain rules to be eligible:

(1) Satisfactory evidence must be produced indicating that the demolition will not greatly enhance the value of the property to the owner. (2) Where the project's principal purpose is to safeguard public health or safety, the property must be judged a hazard by some appropriate and responsible public agency with legal authority. (3) Evi-

HAND-SPREADING OF TREATED GRITS IS MOST PRACTICAL FOR SMALL AREAS

MECHANICAL SPREADING IS MOST EFFICIENT ON OPEN HIGHWAYS OR LONG STRETCHES

ICE CONTROL GRITS NEED CALCIUM CHLORIDE

UNTREATED GRITS DO NOT STAY ON SLIPPERY ICE

CALCIUM-CHLORIDE-TREATED GRITS ANCHOR THEMSELVES *IN* THE ICE

USE glue or molasses to take the place of cement in concrete? Absurd. True, the glue might bind the sand and aggregates together, but how long would they stay that way when subjected to traffic and weather?

It's just the same with treatment of ice control abrasives. The treating material, to serve its purpose, must impart to grits the ability to dig in and stay, regardless of weather, regardless of traffic. The treatment must be effective at below zero as well as at above zero temperatures. One, and only one, treating material meets these qualifications—calcium chloride.

In preparing ice control grits, it's not a case of how cheaply you can treat—it's how effectively you can treat. Experimentation with other methods of treating abrasives only emphasizes that calcium chloride treatment is most positive, makes grits go many times farther, and is cheapest in the final analysis.

Just as there is no substitute for cement in concrete, there is no substitute for calcium chloride in the treatment of ice control abrasives. A new bulletin, "Ice Control and Skidproofing Icy Pavements", crammed full of helpful information, is now available from any Association member. Write for Bulletin No. 36.

Calcium Chloride Association

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The Columbia Alkali Corporation . . Barberton, Ohio
Solvay Sales Corporation . 40 Rector St., New York City
The Dow Chemical Company . . . Midland, Michigan

CALCIUM CHLORIDE

FOR BETTER ICE CONTROL

dence must be produced that there is no practicable method by which the private owner of the property can be compelled to demolish the building at his own expense. (4) The materials obtained by demolition are to become the property of a public agency.

Work relief projects of CWA, ERA and WPA from November 7, 1933, to December 31, 1936, demolished 7,486 buildings, comprising 20,928 living units in 32 states. The Federal Government's cost therein was $10,373,744; the sponsors', $1,135,372. However, few cities have used this method of clearing old and useless dwellings. New York demolished 11,399 worn-out living units from 1933-1936, virtually all by relief labor; but Milwaukee cleared 1,668 units from 1932-1936 solely on condemnation order, under its police power.

The absence of orderly, continuous municipal records of condemnation, closing, repair or demolition activities in most cities will hamper them considerably in complying with requirements of the new public housing program, the N. A. H. O. points out. Both WPA and U. S. H. A. make it clear that cities must assume all possible responsibility for the control of conditions that actually constitute a hazard to the community. The Housing Authority offers loans and grants to aid in production of low-rent housing accommodations. WPA offers man-power to aid cities' regular demolition activities, but not to substitute for them.

Pennsylvania's Central Purchasing Unit to Aid Local Governments

CENTRALIZED purchasing, practiced in approximately 230 city and 36 state governments in the United States, has a new chance to prove itself in Pennsylvania. Under laws passed and made effective this year, Quaker State cities, counties, boroughs and townships may turn to the newly established State Department of Property and Supplies for prices and other information about the commodities they must buy, the Governmental Research Association reports. The new State Purchasing Department hopes to be able to negotiate contracts with the vendors supplying the state which will permit municipalities to secure commodities at the same prices paid by the state.

Municipalities in Pennsylvania have also just secured legislative authorization to establish joint purchasing agencies in order that the governmental units within a single county may poll their purchasing power and thereby secure the price and other advantages which can be obtained by large quantity buying.

For an example of a successful joint-governmental unit purchasing Pennsylvania cities may look to Cincinnati and Hamilton County, Ohio, where a joint Purchasing Committee has existed since 1931.

Cooperative municipal purchasing has been making definite progress in other jurisdictions. Leagues of municipalities in nearly a dozen states, according to the Governmental Research Association, are effecting savings for member cities by purchasing commodities in quantity lots. The Michigan Municipal League, first of these state groups to do centralized buying, now purchases for more than a hundred municipalities such items as fire hose, electric light bulbs, water meters, traffic paint, fire extinguishers and street signs. This cooperative municipal purchasing service keeps in touch with sources of supply, assembles specifications, tests materials, checks market conditions, buys the quality of goods required—all at a considerable price advantage. Other states where leagues of municipalities are developing cooperative municipal purchasing services are Iowa, Kentucky, Nebraska, North Carolina, Oregon, South Dakota, Texas, Virginia and Wisconsin.

Recent City Manager Appointments

O. W. HARRAH has replaced W. H. Wigglesworth as City Manager of Durango, Colo.

M. E. Henderson, former Chief of Police, has been appointed City Manager of Bozeman, Mont. He fills the vacancy created by the death of G. O. Arnold last September.

Frank Foggia replaces C. B. MacInnich as City Manager of Baileyville, Maine.

E. H. Ford has succeeded E. R. Ringo as City Manager of La Grande, Ore.

George M. March, municipal consultant of the League of Kansas Municipalities, succeeded C. C. Holden as City Manager of El Reno, Okla., on November 1.

J. K. Huey, former Manager of Fort Lauderdale, Fla., has been reappointed Acting Manager of that city, to succeed A. J. Merrill.

J. B. Mobley, Jr., Assistant City Manager for the past ten years, has succeeded Robert T. Hargrave as City Manager of Gainesville, Fla.

J. H. Park, former Manager, and more recently Building Inspector of Compton, Calif., has succeeded A. B. Gidley in that city.

Andrew Joyner, Jr., City Manager of Greensboro, N. C., for the past five years, has resigned to become Manager of the Greensboro News Co. Carl W. Smedberg, Director of Public Works, has succeeded him.

P. J. Hernon, Manager of Dun Laoghaire, Ireland, has been promoted to the position of City Manager of Dublin. James L. Smyth, a local man, has been appointed Acting Manager of Dun Laoghaire.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

THAT the offerings of new municipal bonds during 1937 were inadequate to meet the market demands is shown in a year-end review of the municipal bond market by Louis S. Lebenthal, head of the odd-lot municipal bond firm of Lebenthal & Co., New York. Declaring that retrenchment and conservatism had characterized the financial affairs of municipalities in the year, Mr. Lebenthal pointed out that long-term financing by municipalities aggregated less than $1,000,000,000—the smallest of any of the last ten years, with the exception of 1932—and that the new supply hardly offset redemptions in the year.

Outstanding developments last year affecting the municipal bond field included, in the opinion of Mr. Lebenthal, the abandonment of another attempt to tax the income from municipal bonds; failure of adoption of universal tax limitation legislation; the almost complete absence of defaults, and a further marked improvement in tax collections.

Discussing the taxation problem, *The Bond Buyer* said editorially on December 11:

"A dark cloud over the municipal market was dispelled this week when the U. S. Supreme Court, deciding several cases involving legality of state taxes, reaffirmed the constitutional immunity of state and local bonds, and the interest thereon, from Federal taxation.

"Municipal bond buyers have in recent weeks been seriously disturbed by the knowledge that a Congressional committee was giving consideration to proposals advanced by the Treasury Department whereby the Federal Government might, in effect, levy upon the income of individuals and corporations derived from tax-exempt bonds. This apprehension was not clearly reflected in the market because knowledge of the threatened Congressional action happened to come at a time when, for other reasons, the market was strong. Actually, those most intimately associated with the municipal bond business were much concerned over the Vinson committee proposals. The announcement by that body that, in view of the court's ruling in the Drave case, it had abandoned its contemplated moves against tax-exempts, was received with great satisfaction."

The following are recent sales of new issues, reported in December issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$100,000	Tioga Co., N. Y., Highway	3	1-5 Ser.	1.49
143,000	Wichita, Kans., Refunding	2.25	5.5 Avg.	2.05
116,054	Kansas City, Kans., General Improvement	2.5	5.5 Avg.	2.14
135,000	Concord, N. H., Storm Sewer	2.25	9.75 Avg.	2.15
163,000	Ridgewood, N. J., Improvement	2.25	5.86 Avg.	2.24
300,000	Sioux City, Iowa, Flood Protection	2.25	2-16 Ser.	2.249
300,000	Bay City, Mich., Bridge Construction	2.5	10.66 Avg.	2.48
100,000	Lakewood, Ohio, Hospital	2.75	13 Avg.	2.59
250,000	Danville, Va., Electric Plant	2.75	1-25 Ser.	2.68
175,000	Braddock, Pa., School	3	14.33 Avg.	2.86
500,000	Honolulu, Hawaii, Sewer	4	15.16	3.05
850,000	Yonkers, N. Y., Debt Equalization	3.75	16.33 Avg.	3.73
150,000	Fayette Co., Ky., School Building	3.75	13.85 Avg.	3.75
170,000	Conemaugh Tp., Pa., School District	4	13.25 Avg.	3.93

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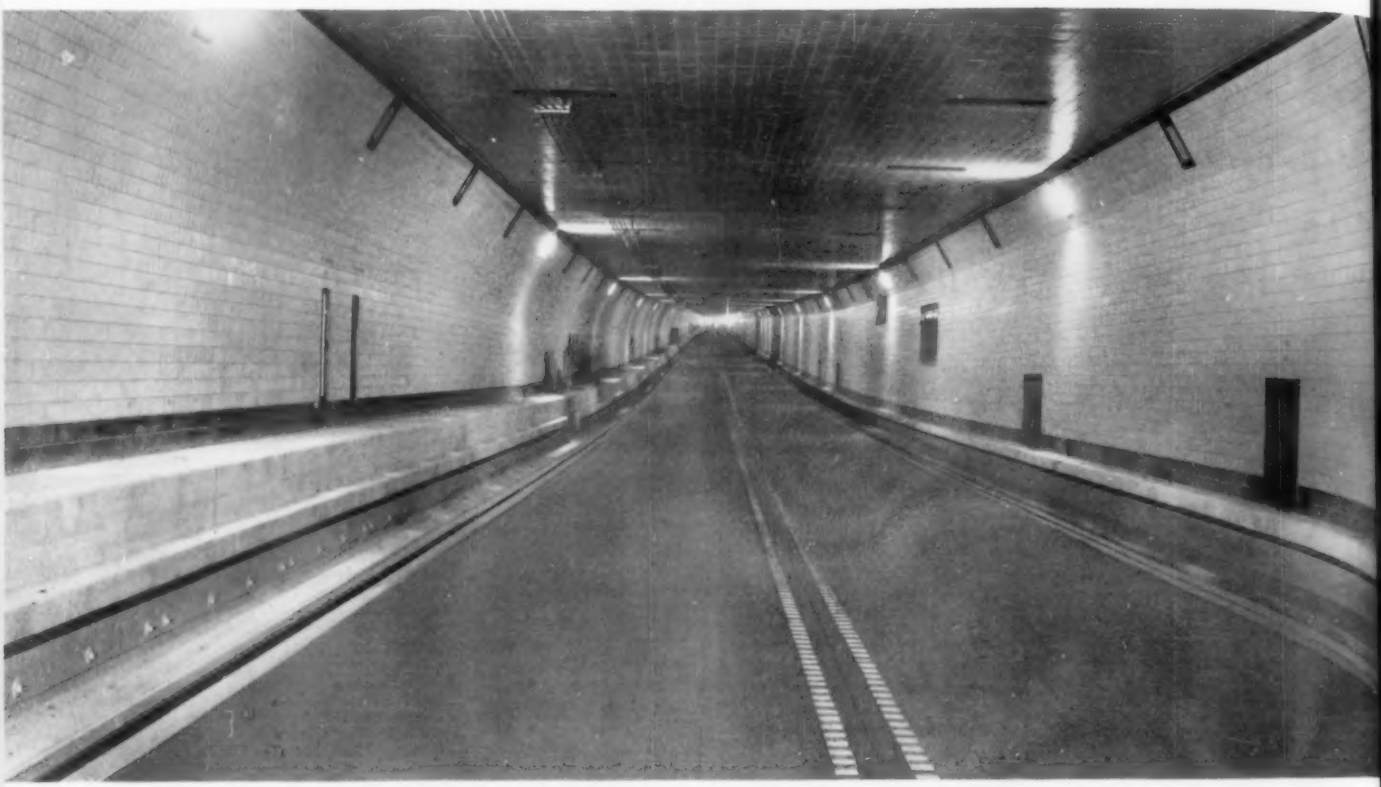

• Under the Hudson River at 38th Street, the brick pavement in the new mid-town Lincoln Tunnel carries 500,000 cars, trucks, and buses monthly. The second tube is now being built. Later, Lincoln Tunnel will connect with a vehicular tunnel to be built under Manhattan Island.

Lincoln Tunnel is more than 8,000 feet long and cost $37,500,000. It was built by the Port of New York Authority which had previously used brick pavement on an approach of the Holland Tube. Brick's non-skid surface, durability and freedom from repair under concentrated traffic make it a wise choice. National Paving Brick Association, National Press Building, Washington, D. C.

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Current Tax Problems

Studies in Current Tax Problems.—Prepared in connection with a survey of taxation in the United States under the direction of The Twentieth Century Fund, with Carl Shoup, Columbia University, as Research Director, and Roy Blough, University of Cincinnati, and Mabel Newcomer, Vassar College, as Associate Directors. The Twentieth Century Fund, New York. 1937. *xxiii* + 303 *pp.* $3.50.

This volume contains some of the research memoranda developed in assembling material for "Facing the Tax Problem," published in April, 1937, by The Twentieth Century Fund. Seven studies, each of some particular aspect of the tax problem, are presented. The descriptive titles are: "Estimate of the Tax Burden on Different Income Classes," by Mabel Newcomer; "A Comparison of Aggregate Burden of Federal Income Tax and State Income Tax in Eleven Selected States," by Carl Shoup, Bernard L. Shimberg, and William Vickrey; "State Property Tax Rates, 1925-36," by Thomas J. Reynolds; "Costs of Administering the Various State and Local Taxes," by Thomas J. Reynolds; "Estimating Income and Estate Tax Yields," by Susan S. Burr and William Vickrey; "An Estimate of Federal, State, and Local Expenditures, 1936-40," by Mabel Newcomer; and "Studies of State and Local Tax Systems, 1920-36," by Carl Shoup, Marion Holman and Bernard L. Shimberg. A large number of tables accompany the text, and a bibliography is included.

Baltimore-Washington-Annapolis

"Regional Planning, Part IV, Baltimore-Washington-Annapolis Area," published by the Maryland State Planning Commission, is the fourth in a series under the guiding interest of the National Resources Committee. Baltimore, Washington, and Annapolis form, roughly, an equilateral triangle with an area of approximately 2,500 square miles and containing a population of over 1,700,000. The cities, being rather close together, dominate the whole section, drawing the small communities and rural areas into their common problems. This study presents the historical background of the region and then studies in some detail the particular problems of land use and public services. Conclusions and recommendations based on these facts are given. 65 pp. 40c. See also p. 93. (Apply to the Maryland State Planning Commission, Latrobe Hall, The Johns Hopkins University, Baltimore, Md.)

Tests for Drunken Drivers

The New York State Bureau of Information has been stimulated by the many requests for information on the subject to make a study of "Tests for Drunken Drivers." The large cities in the country were circularized to ascertain what tests they are using to determine drunkenness, and what evidence they have found acceptable or inacceptable to the courts. Replies from 75 cities indicate a variety of tests, all of which are summarized in this report, prefaced by the procedure recommended by the International Association of Chiefs of Police. See also p. 44 of this issue. (Apply to the New York State Bureau of Municipal Information, City Hall, Albany, N. Y.)

Revaluation of Municipalities

"The Revaluation of Municipalities" is a brochure issued by the J. M. Cleminshaw Co., appraisal engineers. This company stresses the importance of equitable assessment of those property values which are the mainstay of our taxation system. As an introduction to the brochure, a large section is quoted from "Assessment Principles and Terminology," by the National Association of Assessing Officers. The remainder of the report outlines the methods of the disinterested service of careful tax revaluation offered by this company. The latest scientific methods of evaluation of all types of land and improvements are employed by persons of rigorous training. 42 pp. (Apply to J. M. Cleminshaw Co., 949 Broadway, New York.)

Index to Municipal Legislation

Index to Municipal Legislation, A Cumulative, Alphabetical, Subject Index of Municipal Ordinances, Proposed or Adopted by City Councils, Boards of Aldermen, City Commissions and Similar Bodies, as Recorded in Their Printed Official Proceedings and Journals.—Compiled, arranged and edited by Frederick Rex, Librarian, Municipal Reference Library, 1005 *City Hall, Chicago, Ill.* 1937. 250 *pp.* $2.50 *postpaid.*

The record of municipal legislation found in this single volume was compiled from 42 numbers of an irregular publication of the Municipal Reference Library entitled "What Our City Councils Are Doing," appearing between June 15, 1922, and January 1, 1936. The index is arranged in three ways—by subjects in alphabetical order, alphabetical under each subject by cities, and chronological under each city. All phases of municipal legislation of general interest are covered, and this volume should prove of practical use as a handy reference for municipal officials, and for others concerned with municipal government. The proceedings of 38 United States cities and 4 foreign cities are covered, and the comparative aspect of the presentation is particularly well worth noting.

Milk Control

Milk is one of our most nourishing foods, yet it is one of the most dangerous carriers of disease. If we should increase the consumption of milk without regulating the conditions under which it is produced and distributed, we might be injuring public health rather than improving it. Four out of five communities with less than 10,000 population do not regulate milk at all, and it is in these small towns that milk-borne diseases prevail to the greatest extent. It is extremely important that adequate milk-control ordinances be uniformly applied throughout the industry. A model ordinance which has been available since 1923 costs, on an average, 8.3 cents per person per annum to administer. A report entitled "Milk Control, Government Regulation of the Dairy Industry in the United States," reviews present milk regulations and their extent of application, points out and examines methods of further purifying milk in this country, and discusses ways of financing and administering municipal ordinances. An appendix to the pamphlet contains the model milk ordinance. 49 pp. 75c. (Apply to the American Municipal Association, 850 E. 58th St., Chicago, Ill.)

Housing and Planning Lectures

During the last year, Sir Raymond Unwin has delivered a series of lectures at the School of Architecture, Columbia University. The Central Housing Committee has made their publication possible, under the title "Housing and Town Planning Lectures, 1936-1937," by Sir Raymond Unwin. In his clear and simple style, with the finest comprehension and sympathy with the problems of both England and America, he tells a story of housing and town planning from their earliest beginnings. The lectures contain a valuable combination of the theoretical and the practical, based on the wisdom of many years of experience and growth, which any person, whether connected closely to the profesion or not, should be able to appreciate. 86 pp. (Apply to the Central Housing Committee, Washington, D. C.)

Rural Zoning Ordinance

The Division of State Planning, State of New York, with the cooperation of the WPA has published "A Simplified Rural Zoning Ordinance." It is not to be considered a model ordinance, since zoning ordinances must be cut to fit, but it should prove a valuable guide to rural communities. It contains all the necessary elements, which can be modified and refined for the use of the specific town or village. 9 pp. (Apply to the State of New York, Division of State Planning, 353 Broadway, Albany, N. Y.)

Libraries and Adult Education

The Role of the Library in Adult Education.—Papers presented before the Library Institute at the University of Chicago, August, 1937, *edited by Louis R. Wilson. The University of Chicago Press, Chicago, Ill. xi* + 321 *pp.* $2.00 *from* The American City.

The role of the library in adult education is growing ever more important. Its possibilities of expansion are untold. However, many libraries are not in step with the adult education movement; they are not sufficiently aware of or attuned to educational or social trends to be of maximum use. This volume contains a number of articles dealing with the various theoretical and practical aspects of the relationship of the library to adult education, and it should be of particular value and inspiration to librarians and students of library schools.

Wells

"Wells Dug, Drilled, and Driven" covers the proper location and construction of the several different kinds of wells for a safe water supply. Instructions for sterilizing water from wells, cisterns or springs are also given as a temporary measure where the source of supply is in need of reconstruction. 18 pp. (Apply to the Illinois Dept. of Public Health, Albert C. Baxter, M.D., Acting Director, Springfield, Ill.)

Speed and Accidents

A progress report entitled "Speed and Accidents" has issued from a special committee of the National Safety Council devoted to that problem. The relation of speed to accidents must be pinned down to a practical evaluation and a practical method of control. This report analyzes what constitutes a safe speed, summarizes all available information on the subject, and outlines the methods that should be most effective for getting information on which to base definite conclusions and recommendations. 33 pp. (Apply to the National Safety Council, 20 N. Wacker Drive, Chicago, Ill.)

The Housing Market

A publication entitled "The Housing Market" provides some interesting figures on the amount of housing needed in this country, and by which income groups. Current annual requirements plus the number of houses necessary to replace existing substandard dwellings amount to 1,500,000 units which should be built in each of the next two years, 1938 and 1939. Only 11 per cent or 165,000 units should be built for those who can pay more than $30 per month for rent. One interesting observation of this report is that the number of families which will pay over $50 per month for rent is now only one-third the number paying that price in 1930, in spite of the fact that income in the upper brackets has increased considerably during the past few years. 32 pp. (Apply to the National Housing Committee, Tower Bldg., 14th at K St., N. W., Washington, D. C.)

Housing and Planning Congress

At the International Housing and Town Planning Congress of July, 1937, several studies of special phases of the housing and town planning problem were presented. One is entitled "Financing House-Building of the Lower Classes," and contains papers on this subject from 19 different countries. Another, entitled "Rents for the Working Classes," analyzes the rent situation in 24 countries. A third study is entitled "Horizontal or Vertical Building." It opens with a detailed questionnaire on the differences in initial cost, management and upkeep costs, and the non-economical advantages of the various types of housing; and the remainder of the publication is taken up by 11 papers from different countries on the subject of the questionnaire. These three publications are 91, 286, and 105 pages in length respectively, and are presented in French, German and English. (Apply to the International Housing Association, Frankfort/M., Germany.)

New One-Tonner BRINGS FORD V·8 ECONOMY TO ONE-TON RANGE

Many operators of hauling and delivery units have asked Ford to build a unit that would handle one-ton loads with the same proved performance and economy that Ford V-8 units of larger and smaller capacities bring to their respective fields. Result: The new Ford V-8 One-Tonner.

The One-Tonner has a 122-inch wheelbase. It has been designed to take advantage of the unusually economical 60-hp. V-8 engine, although the 85-hp. V-8 is also available where higher speed and faster acceleration are desired.

Though low in price, the One-Tonner has the time-proved features that make the larger Ford V-8 Trucks so reliable. Frame, springs and axles are designed for high reserve strength, without penalizing economy with excess weight.

Visit the nearest Ford dealer and arrange for an "on-the-job" test with your own loads and your own driver. While there, you will also see the new 1938 Ford V-8 134-inch and 157-inch wheelbase Trucks and the new 112-inch Commercial Cars — the finest, best looking units in all Ford history.

New Features of 1938 Ford V-8 Trucks

New styling • More comfortable cabs, more head room, new interior trim, softer seats • Quicker stopping brakes • New 134-inch wheelbase, improved load distribution • For 134 and 157 inch trucks, new standard frame width • Larger spindles • Easier steering, roller type with 18-inch wheel • TIME-PROVED FORD TRUCK FEATURES: V-8 engines, 85 and 60 hp. • Full-floating rear axle with tapered roller bearings • Straddle-mounted pinion, ring-gear thrust plate • Centri-Force Clutch, low pedal pressure, high torque capacity • Needle roller bearing universal joints on 134 and 157 inch trucks • Full torque-tube and radius-rod drive, free-shackled springs • Ford Engine and Parts Exchange Plan.

1938 FORD V·8 TRUCKS AND COMMERCIAL CARS

FORD'S SEVENTH YEAR OF V·8 SUCCESS

During January we hope you will remember to mention THE AMERICAN CITY.

Oakland Traffic Survey

The Oakland Street Department has published the "Report of Oakland Traffic Survey," the outcome of a WPA project under the direction of I. S. Shattuck, City Planning Engineer of Oakland. The survey appears in two volumes. Volume I contains descriptive and tabular material under the headings of "Street Traffic Volumes," "Bay Bridge Traffic and Its East Bay Distribution," "Pedestrian Traffic Volumes," "Degree of Observance of Traffic Regulations," "Vehicular Speeds and Delays," "Automobile Parking—Central Business District," "Traffic Accident Analysis," and "Conclusions and Recommendations." The conclusions and recommendations are guided by the belief that cities cannot be remade overnight but must be readjusted gradually with changing conditions. Volume II is 11 by 20 inches in size and contains 35 plates illustrating the survey data and some engineering proposals for the solution of traffic problems. Vol. I, 77 pp.; Vol. II, 35 plates. $2.50 postpaid. (Apply to the Street Department, Oakland, Calif.)

Recent Writings on Housing

The Citizens' Housing Council of New York has started the publication of a "Housing Reference Bulletin." The first two issues have been devoted solely to an extensive bibliography entitled "Recent Writings on Housing" which is composed of notices of current books, pamphlets and magazine articles on housing published principally in the United States and England. The bibliography will appear at intervals of approximately two or three weeks, and eventually will become only a part of a more pretentious bulletin. (Apply to the Citizens' Housing Council of New York, 470 Fourth Ave., New York.

Fire Retardant Roofing

In "Fire Retardant Roofing," by Percy Bugbee, the National Fire Protection Association takes an uncompromising attitude toward the wooden shingle roof. It is a fire hazard which should be eliminated in every city, for it is the cause of 40 per cent of all fires in buildings. A spark from a chimney will ignite one roof, and, if there is a wind, sparks may carry a great distance, starting one fire after another as they fall. Great sections of cities have been wiped out by this process. If American municipalities would cut down insurance rates, lop off fire-department costs, and stop a useless waste of property and human lives, they might well pass ordinances requiring fire-retardant roofing. 11 pp. 10c. (Apply to the National Fire Protection Assn., 60 Batterymarch St., Boston, Mass.)

Standards on Cement

The American Society for Testing Materials has issued a comprehensive booklet entitled "A.S.T.M. Standards on Cement." Specifications cover portland cement, high-early-strength portland cement, natural cement and masonry cement. The testing methods given for portland cement cover chemical analysis, comprehensive strength and fineness. A testing manual is given as a guide to those qualities that should be tested, and a list of references on portland cement is included. A final chapter presents specifications for sieves for testing purposes. 96 pp. $1.00. (Apply to the American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.)

Population Study

In Hamilton County, Ohio, there has been established The Regional Department of Economic Security, for the purpose of developing plans and procedures for stabilizing and balancing employment. The first published study of this organization is "The Population of Hamilton County, Ohio, in 1935," by Warren S. Thompson and P. K. Whelpton. The census was begun in the spring of 1935 with the aid of relief funds, and after several delays it was pushed to completion. The published report shows the data collected to be extensive, exceeding that customary with the Federal Census. The information is easily compared with previous data collected by the Federal Census of different years, thus providing a factual basis for determining the fluctuating problems of economic security and their solution. 118 pp. and 54 charts. Circulation limited to 250 copies. (Apply to the Regional Department of Economic Security, Cincinnati Employment Center, 1014 Race St., Cincinnati, Ohio.)

Cost of Local Government

Research Bulletin No. 102 of the New Jersey State Chamber of Commerce is entitled "Cost of Local Government in New Jersey Municipalities of Over 20,000 Population—1937." The 1937 budgets show a decrease of $8,312,191 from the 1936 budgets, attributable to a state-wide assault by taxpayers and officials upon extravagance and inefficiency. The new budget figures would have been still smaller but for reserves set aside against uncollected taxes, appropriations to clear up old outstanding obligations, restoration of pay cuts, appropriations for new equipment intended to be purchased, and budgeting local poor relief instead of borrowing funds when needed. This study outlines the citizen's part in municipal budget-making and factors that influence budget appropriations, and, finally, it contains a large number of tables showing financial statistics of New Jersey municipalities. 19 pp., 15 tables. (Apply to the New Jersey State Chamber of Commerce, 605 Broad St., Newark, N. J.)

Joseph Lee

The December, 1937, issue of *Recreation* is a tribute to Joseph Lee, who died last July. He was President of the National Recreation Association from 1910 until his death. Within the pages of this magazine a large collection of short biographical studies of Joseph Lee are presented by many distinguished men and women. Together they provide an excellent picture of the character and life concern of this charming and generous man. His main interests centered around recreation, education and social work, but many another civic movement had the support of his creative efforts. 72 pp. 50c. (Apply to the National Recreation Association, 315 4th Ave., New York.)

County Government

The Milwaukee County Clerk has sponsored a WPA project to publish a "Manual of Duties of All Elected and Appointed County Officials and Commissions." The purpose of the resultant slender and attractive volume is to acquaint the public with the services rendered it by these county officers. The accounts presented of the work of the different departments are brief and readable and should prove interesting to student and layman alike. 126 pp. (Apply to George F. Breitbach, County Clerk, Milwaukee County, Milwaukee, Wis.)

License Fees

"License Fees Collected in Thirty-One Cities," prepared by M. P. Heavenrich, Jr., of the Flint Institute of Research and Planning, is a listing of fees reported by cities in response to a questionnaire sent out in September, 1937. Cities confronted with the problem of levying fees should find in this list some useful suggestions, although, the report points out, they must not overlook regulatory state statutes and constitutional provisions which may prevent their adoption as given. Those cities included from states other than Michigan are all of more than 100,000 population. 35 pp. (Apply to the Flint Institute of Research and Planning, 316 W. Water St., Flint, Mich.)

Underground Planning

A relatively silent subdivision of city planning is underground planning. The American Society of Civil Engineers has just published a manual entitled "Location of Underground Utilities" which offers eleven general principles as a guide in this field of engineering work. Standards for recording the data, for preparation of underground plans, for the designs themselves, and for office practice are presented. 15 pp. (Apply to the American Society of Civil Engineers, 33 W. 39th St., New York.)

Plans for the New York Region

Information Bulletin No. 39 of the Regional Plan Association is entitled "Important Projects in the Region Needing Immediate Attention." Previous regional programs of public works in the New York region are noted as to their progress, and recommendations are made on projects and methods of action for the next four years. The proposals in general fall under traffic and transportation and park improvements. The financing of the improvements is considered. 16 pp. (Apply to the Regional Plan Association, Inc., 400 Madison Ave., New York.)

Progress in American Life

The 25th anniversary number of the *Survey Graphic*, December, 1937, contains a large number of articles on developments in various phases of American life over the past quarter-century, with some prophetic glimpses into the future. A few descriptive titles with the names of their distinguished authors are: "Working with Nature," by Stuart Chase; "The Living Law," by Walton H. Hamilton; "What 19,000 Doctors Could Tell Us," by Douglas Orr, M. D., and Jean W. Orr; "Earth, Air and Mind," by H. G. Wells; "If the City Fails, America Fails," by C. A. Dykstra; "New Stepping Stones for American Homes," by Loula D. Lasker; "How Far Have We Come?" by William Allen White; "The Rise of Public Welfare," by Fred K. Hoehler; and "The Turn of the Century," by Charles A. Beard. 50c. (Apply to the Survey Associates, 112 E. 19th St., New York.)

Resources and Debts

"Resources and Debts of the Forty-Eight States, 1937," by Edna Trull, is an interesting study in the light of the many changes in state fiscal policies and practices over the past few years. Most startling has been the fivefold increase of the gross debt of states since 1917, pushed up by highway finance, soldiers' bonuses, emergency depression requirements and many other modern expenditures. This pamphlet first analyzes state debts and debt trends, then the social and economic characteristics of the states which determine the level of taxable wealth and its stability, and, finally, the relation of debt to debt-paying ability. 103 pp.; charts. (Apply to the Municipal Service Dept., Dun and Bradstreet, Inc., 290 Broadway, New York.)

Budget Procedure

A supplement to "Your Dollar's Worth," a publication of the Pennsylvania Economy League, is a brief guide to the preparation of local budgets in Pennsylvania. First the legal calendar requirements and practice for each type of governmental unit are given, chronologically and by unit. Secondly, the legal requirements for budget preparation, adoption and administration in each type of local governmental unit are outlined. The editors of this publication are strongly in favor of the preparation of a budget prior to each fiscal year. 12 pp. (Apply to the Pennsylvania Economy League, Inc., 1914 Fidelity-Philadelphia Trust Bldg., Philadelphia, Pa.)

Ground Water Levels

"Change in Ground Water Levels in North Dakota," by Howard E. Simpson, is a 23-page statement derived from "Report on the Change in Ground Water Levels in the Red River and Middle Missouri River Basins," by the same author. Droughts, surface waters and ground water indicators are discussed, and the method of inquiry is analyzed for dependability. Map, tables. (Apply to the State Geologist, University Station, Grand Forks, N. Dak.)

Other Reports Received

CHICAGO, ILL.—"Facts and Fallacies About Position-Classification," by Ismar Baruch. Published by the Civil Service Assembly, 850 East 58th St., Chicago, Ill., 25 pp.

CHICAGO, ILL.—Annual Report, Department of Public Works and Department of Streets and Electricity, 1936. 418 pp. 15c.

DETROIT, MICH.—"Narcotic Addiction as a Factor in Petty Larceny in Detroit," by Edward C. Jandy and Maurice Floch. Published by the Detroit Bureau of Governmental Research, Inc., 5135 Cass Ave., Detroit. 23 pp.

DULUTH, MINN.—"Building Code of the City of Duluth, Minnesota." 801 pp.

FORT WORTH, TEXAS.—"Municipal Life, 1931-1937." 56 pp.

ILLINOIS.—Revised Motor Vehicle Laws, 1937. 85 pp.

MILWAUKEE, WIS.—"Pedestrian Traffic Survey."

NEW HAVEN, CONN.—Annual Report, Department of Health, 1936. 31 pp.

PASADENA, CALIF.—Annual Report, Municipal Light and Power Department, 1936-1937. 36 pp.

ST. LOUIS, MO.—"What the Taxpayer Gets for His Money," Annual Report, Department of Streets and Sewers, 1936-37. 60 pp.

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See Tarvia Exhibit National Road Show, Cleveland, Ohio, January 16-21. Booth D-34.

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Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

Meeting is annual convention unless otherwise designated

JANUARY 7-8.—BOSTON, MASS. (500)
Massachusetts State Association of Selectmen. (Gardner Auditorium—State House.) Exec. Sec., Axel E. Z. Betterman, Hotel Westminster, Boston, Mass.

JANUARY 12-14.—CINCINNATI, OHIO.
National Paving Brick Association. (Netherland-Plaza Hotel.) M'ng Dir., G. F. Schlesinger, 1215 Nat'l Press Bldg., Washington, D. C.

JANUARY 13-15.—WASHINGTON, D. C.
American Engineering Council. (Mayflower Hotel.) Exec. Sec., Frederick M. Feiker, 744 Jackson Pl., Washington, D. C.

JANUARY 17-21.—CLEVELAND, OHIO.
American Road Builders' Association. Sec., Charles M. Upham, 952 Nat'l Press Bldg., Washington, D. C.

JANUARY 17-19.—WILLIAMSBURG, VA. (100)
American Society of Landscape Architects, Inc. Exec. Sec., Bradford Williams, 9 Park St., Boston, Mass.

JANUARY 17-21.—STILLWATER, OKLA.
Oklahoma Water and Sewage Conference. (Oklahoma Agricultural and Mechanical College.) Sec.-Treas., H. J. Darcy, State Health Dept., Oklahoma City, Okla.

JANUARY 19-21.—NEW YORK.
American Society of Civil Engineers. Sec., George T. Seabury, 33 W. 39th St., New York.

JANUARY 20-21.—WASHINGTON, D. C.
National River and Harbors Congress. (Mayflower Hotel.) Sec., Fred D. Beneke, 1128 Connecticut Ave., Washington, D. C.

JANUARY 20-22.—NEW YORK.
New York State Sewage Works Association. Sec.-Treas., A. S. Bedell, State Dept. of Health, Albany, N. Y.

JANUARY 22-24.—WASHINGTON, D. C.
National Public Housing Conference. Sec., Helen Alfred, 112 E. 19th St., New York.

JANUARY 24-28.—NEW YORK.
American Institute of Electrical Engineers. Winter convention. (Engineering Societies Bldg.) Nat'l Sec., H. H. Henline, 33 W. 39th St., New York.

JANUARY 24-28.—NEW YORK.
American Society of Heating and Ventilating Engineers. (Hotel Biltmore.) Sec., A. V. Hutchinson, 51 Madison Ave., New York.

JANUARY 24-28.—LAFAYETTE, IND.
Purdue Road School. (Purdue University.) Address: Ben H. Petty, Prof. of Highway Engineering, Purdue Univ., Lafayette, Ind.

JANUARY 31-FEBRUARY 1.—LONDON, ONT.
Engineering Institute of Canada. Sec., R. J. Durley, 2050 Mansfield St., Montreal, Que.

FEBRUARY 14-19.—COLLEGE STATION, TEXAS.
Texas Water Works Short School. (Agricultural and Mechanical College of Texas.) Sec., V. M. Ehlers, Austin, Texas.

FEBRUARY 15.—NEW BRUNSWICK, N. J.
American Water Works Association—New Jersey Section. Meeting. (Rutgers Univ.) Sec., P. S Wilson, 325 Washington St., Glen Ridge, N. J.

FEBRUARY 15-17.—ANN ARBOR, MICH.
Conference on Highway Engineering—University of Michigan. (Michigan Union Bldg.) Sec., R. E. Morrison, Univ. of Michigan, Ann Arbor, Mich.

FEBRUARY 16-18.—ATLANTIC CITY, N. J.
Association of Highway Officials of North Atlantic States. (Hotel Ambassador.) Sec.-Treas., A. Lee Grover, State Highway Commission, Trenton, N. J.

FEBRUARY 22-24.—CHICAGO, ILL.
American Concrete Institute. (Palmer House.) Sec., Harvey Whipple, 407 New Center Bldg., Detroit, Mich.

FEBRUARY 22-25.—WICHITA, KANS.
Southwest Road Show and School. (Wichita Exhibition Bldg.) Mgr., F. G. Wieland, 225 S. Water St., Wichita, Kans.

MARCH 2-3.—NEWARK, N. J.
Eastern Safety Conference. Conference. (Essex House.) Mgr., Fred M. Rosseland, 24 Branford Pl., Newark, N. J.

MARCH 10-11.—TRENTON, N. J.
New Jersey Sewage Works Association. (Stacy-Trent Hotel.) Sec., John R. Downes, Bound Brook, N. J.

MARCH 17-18.—JAMESTOWN, N. Y.
American Water Works Association—New York Section. (Hotel Jamestown.) Sec., R. K. Blanchard, 50 W. 50th St., New York.

MARCH 21-23.—LOUISVILLE, KY.
American Water Works Association—Kentucky-Tennessee Section. (Brown Hotel.) Sec.-Treas., Howard D. Schmidt, 420 6th Ave., N., Nashville, Tenn.

MARCH 21-22.—BOSTON, MASS.
Massachusetts Safety Conference. (Hotel Statler.) Gen. Mgr., Lewis E. MacBrayne, 80 Federal St., Boston, Mass.

MARCH 23-25.—WINDSOR, ONT.
American Water Works Association—Canadian Section. (Hotel Prince Edward.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto 5, Ont.

MARCH 23-25.—ATLANTIC CITY, N. J.
New Jersey Mosquito Extermination Association. (Hotel Chalfonte-Haddon Hall.) Sec., Thomas J. Headlee, State Experiment Station, New Brunswick, N. J.

APRIL.—WASHINGTON, D. C. (Date later.)
National Fire Waste Council. Mgr., Terence F. Cuneen, Chamber of Commerce of the United States, Washington, D. C.

APRIL.—LAWRENCE, KANS. (Date later.)
Kansas Water and Sewage Works Association. Sec.-Treas., E. Boyce, State Board of Health, Lawrence, Kans.

APRIL 3-5.—ATLANTA, GA.
Southern Commercial Secretaries' Association. Mgr., Stanley Draper, Chamber of Commerce, Oklahoma City, Okla.

APRIL 7-8.—LAFAYETTE, IND.
American Water Works Association—Indiana Section. (Purdue Univ.) Sec., J. A. Bruhn, Box 855, Indianapolis, Ind.

APRIL 20-22.—ST. LOUIS, MO.
Missouri Association of Public Utilities. (Jefferson Hotel.) Asst. Sec., Jesse Blythe, 101 W. High St., Jefferson City, Mo.

APRIL 24-28.—NEW ORLEANS, LA.
American Water Works Association. (Hotel Roosevelt.) Sec., Harry E. Jordan, 29 W. 39th St., New York.

MAY.—BALTIMORE, MD. (Date later.)
Maryland-Delaware Water and Sewerage Association. Conference. Sec., A. W. Blohm, 2411 N. Charles St., Baltimore, Md.

MAY 2-5.—WASHINGTON, D. C. (2,500)
Chamber of Commerce of the United States. Sec., D. A. Skinner, 1615 H St., N. W., Washington, D. C.

MAY 5-6.—COLUMBIA, MO.
Missouri Association of Mayors and Other Municipal Officials. (Hotel Tiger.) Exec. Sec., George A. Spencer, 412 Guitar Bldg., Columbia, Missouri.

MAY 9-12.—ATLANTIC CITY, N. J.
National Fire Protection Association. (Haddon Hall.) M'ng Dir., Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

MAY 13-14.—BOZEMAN, MONT.
American Water Works Association—Montana Section. (Baxter Hotel.) Sec., Herbert B. Foote, State Dept. of Health, Helena, Mont.

MAY 19-21.—SPOKANE, WASH.
American Water Works Association—Pacific Northwest Section. Sec., Fred Merryfield, Oregon State College, Corvallis, Ore.

MAY 23-25.—DAYTONA BEACH, FLA.
American Water Works Association—Florida Section. Sec., J. R. Hoy, 404 Hildebrandt Bldg., Jacksonville, Fla.

MAY 23-26.—ST. LOUIS, MO.
National Association of Purchasing Agents. (Hotel Jefferson.) Sec.-Treas., G. A. Renard, 11 Park Pl., New York.

MAY 25.—NEW MILFORD, N. J.
American Water Works Association—New Jersey Section. Meeting. (Plant of the Hackensack Water Co.) Sec., P. S. Wilson, 325 Glen Ridge, N. J.

JUNE 7-9.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Sec.-Treas., I. M. Glace, 22 S. 22nd St., Harrisburg, Pa.

JUNE 13-18.—KANSAS CITY, MO.
American Library Association. Conference. (Municipal Auditorium.) Sec., Carl H. Milam, 520 N. Michigan Ave., Chicago, Ill.

JUNE 20-24.—WASHINGTON, D. C.
American Institute of Electrical Engineers. Summer convention. (Mayflower Hotel.) Nat'l Sec., H. H. Henline, 33 W. 39th St., New York.

JUNE 26-JULY 2.—SEATTLE, WASH.
Joint meeting. (Olympic Hotel.) *American Public Welfare Association.* Dir., Fred K. Hoehler, 850 E. 58th St., Chicago, Ill. *National Conference of Social Work.* Gen. Sec., Howard R. Knight, 82 N. High St., Columbus, Ohio.

AUGUST 13-20.—MEXICO CITY.
International Federation for Housing and Town Planning. Congress. Gen. Sec., Donald C. L. Murray, 25 Bedford Row, London, W. C. 1, England.

SEPTEMBER 19-22.—ATLANTIC CITY, N. J.
American Transit Association. (Atlantic City Auditorium.) Gen. Sec., Guy C. Hecker, 292 Madison Ave., New York.

OCTOBER 3-7.—PITTSBURGH, PA.
National Recreation Association. (William Penn Hotel.) Administrative Sec., Thomas E. Rivers, 315 Fourth Ave., New York.

OCTOBER 6-7.—WASHINGTON, D. C.
American Water Works Association—Four States Section. Sec., Carl A. Hechmer, Washington Suburban Sanitary District, Hyattsville, Md.

OCTOBER 10-14.—CHICAGO, ILL.
National Safety Council. Congress. (Stevens Hotel.) M'ng Dir., 20 N. Wacker Drive, Chicago, Ill.

OCTOBER 13-15.—DES MOINES, IOWA.
American Water Works Association—Missouri Valley Section. Sec., Earl L. Waterman, Univ. of Iowa, Iowa City, Iowa.

OCTOBER 17-20.—OKLAHOMA CITY, OKLA.
American Water Works Association—Southwest Section. (Biltmore Hotel.) Sec.-Treas., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

OCTOBER 25-28.—KANSAS CITY, MO.
American Public Health Association. Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York.

OCTOBER 26-29.—RIVERSIDE, CALIF.
American Water Works Association—California Section. Sec.-Treas., Carl M. Hoskinson, Division of Water, Sacramento, Calif.

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At 8:31, car No. 100 got there. At 8:32, car No. 128 arrived.

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A second broadcast brought cars 24, 14 and 42.

After a concerted attack, the prowler surrendered—was identified as F . . . . K . . . . . an escaped convict.

All the loot he had gathered was recovered in the basement.

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What Western Electric police radio is doing for Chicago and scores of other communities, it can do for you. Whether your territory is a small town or an entire state, there's equipment to meet your exact needs.

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POLICE RADIO TELEPHONE EQUIPMENT

News and Illustrations

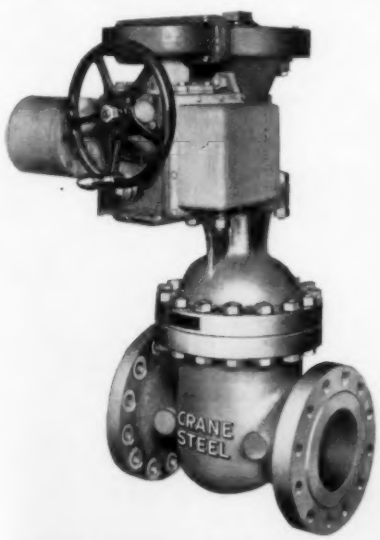
Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Electric Motor Unit for Water-Works Valves

An electric unit for opening and closing water-works valves by remote control, which does not interfere with hand operation of the valves at any time, has been developed by the Crane Co., 836 South Michigan Avenue, Chicago, Ill. The Crane Type C electric motor unit consists of a patented device for opening and closing a valve and automatically stopping the movement of the valve disc at the limits of travel in the open and closed positions as well as at any intermediate point where the travel may be blocked by some obstruction. The unit provides for hand and power operation and is fitted with a pinion for engagement by suitable gearing that drives the yoke sleeve within which the valve stem is journalled. The hand operating wheel does not rotate when the valve is being operated by power.

The torque control feature is so arranged that the driving motor is automatically disconnected from the source of power when the valve is completely seated, or completely open, or if the valve disc meets an obstruction in the closing direction. The torque applied to the yoke sleeve is limited by a device incorporated in the unit and is effective in the closing direction only. The extent of movement of the valve stem in the opening direction is controlled by means of a mechanically actuated limit switch, which can be set to disconnect the motor from the source of power at any predetermined point in stem travel.

In addition to the power shaft on which the pinion mentioned above is mounted, a second shaft is provided for operating the unit by hand. The pinion shaft is responsive either to motor or to manual drive or a combination of the two. While it is possible to turn the valve operating unit by hand and motor simultaneously, neither the hand wheel nor the shaft on which it is mounted will rotate when the unit is being driven by motor only. Likewise, if the operating unit is driven by hand, the motor rotor will not revolve. The hand driving mechanism is always engaged. Manual and magnetic clutches, or other selective engaging means, are not used or required. When operating by hand, very little effort is required, owing to the gear reduction between the handwheel and yoke sleeve on the valve.



A GATE-VALVE EQUIPPED WITH A CRANE TYPE C MOTOR UNIT

Bulletin on Sewage-Treatment Equipment

The International Filter Co., 59 East Van Buren Street, Chicago, Ill., has recently issued two new illustrated bulletins replete with diagrams on Infilco rotary distributors and automatic dosing siphons and the Infilco Activator, a unit for activated sludge plants. Bulletin 2410 illustrates and describes the rotary distributor and automatic dosing siphon, and Bulletin 2420 describes the Activator. Copies of these Bulletins may be secured gratis by readers mentioning THE AMERICAN CITY.

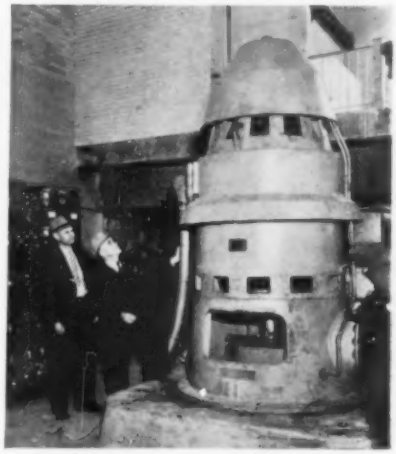
New Sales Manager for Worthington-Gamon

The appointment of W. C. Flanders as Sales Manager, succeeding G. H. Gleeson, formerly Vice-President in Charge of Sales and recently resigned, has been announced by Worthington-Gamon Meter Co., of Harrison, N. J. Mr. Flanders started with the company 15 years ago as a salesman in New Jersey, and for the past two years has been a general representative in the northeastern section of the United States.

As Secretary of the New Jersey Water Works Association, Mr. Flanders served that organization for five years, until its absorption by the American Water Works Association a few months ago.

New 15,000-GPM Pumps

Two vertical pumps delivering 15,000 gallons a minute against a head of 420 feet have recently been installed by the city of Spokane, Wash. With an overall plant efficiency of 81.8 per cent, these pumps deliver water at a cost of less than one cent per thousand gallons. Built by the Pomona Pump Co., Pomona, Calif., the pumps are of the vertical deep-well turbine type and each is powered by a 900-hp Westinghouse motor. These pumps are equipped with rubber bearings and are lubricated. Safety and protective interlocking features of the electrical control make the station practically non-failing. A float switch in the reservoir automatically starts and stops the plant by remote control. Temperature control relays protect the pump motors and will stop them in case of any overtemperature.



ONE OF THE NEW POMONA VERTICAL TURBINE PUMPS AT SPOKANE, WASH.

Testing Laboratories Form Association

Representatives of twenty of the principal commercial laboratories of the United States recently completed the organization of the American Council of Commercial Laboratories, one of the purposes of which will be the promotion of the proper use of scientific testing methods for the protection and certification of quality in advertised goods. Laboratories which are adjuncts of other enterprises, or which are not self-supporting, or which for any reason are not independent, are ineligible for membership in the Council.

The following officers and members of an executive committee were elected to serve during 1938: President, Preston S. Miller, Electrical Testing Laboratories, New York City; Vice-President, Monroe L. Patzig, Patzig Testing Laboratories, Des Moines, Iowa; Secretary, D. E. Douty, United States Testing Co., Hoboken, N. J.; Treasurer, A. R. Ellis, Pittsburgh Testing Laboratory, Pittsburgh, Pa. Members of the Executive Committee: James H. Herron, The James H. Herron Co., Cleveland, Ohio; F. B. Porter, Southwestern Laboratories, Fort Worth, Texas; and T. A. Wright, Lucius Pitkin, Inc., New York City.

Burroughs

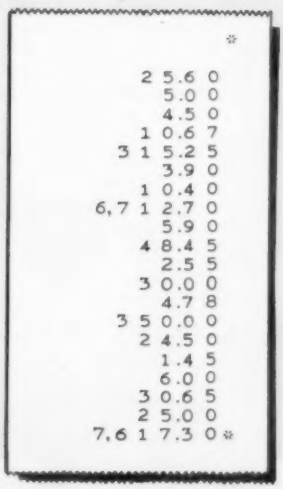
SHORT-CUT KEYBOARD

Eliminates Needless Motions

ALL CIPHERS ARE AUTOMATIC

SEVERAL KEYS CAN BE DEPRESSED AT ONE TIME

ENTIRE AMOUNTS CAN BE WRITTEN IN ONE OPERATION



FOR EXAMPLE—YOU SAVE

69 OPERATIONS

in listing and adding these 19 typical amounts

Take the above as an example of how thousands of needless operations can be eliminated by the Burroughs short-cut method. The amount 25.60, for instance, was listed and added by depressing the 2, 5 and 6 keys and the motor bar *all together, in one single operation*, instead of writing one figure at a time. The amount 6,712.70 was listed and added the short-cut way in two operations instead of seven. Thus, the short-cut method saves operations in writing any amount.

Let the local Burroughs representative show you on your own work—in your own office—what the Burroughs short-cut method of listing and adding amounts on Burroughs short-cut keyboard can actually mean to you.

BURROUGHS ADDING MACHINE COMPANY • DETROIT, MICHIGAN

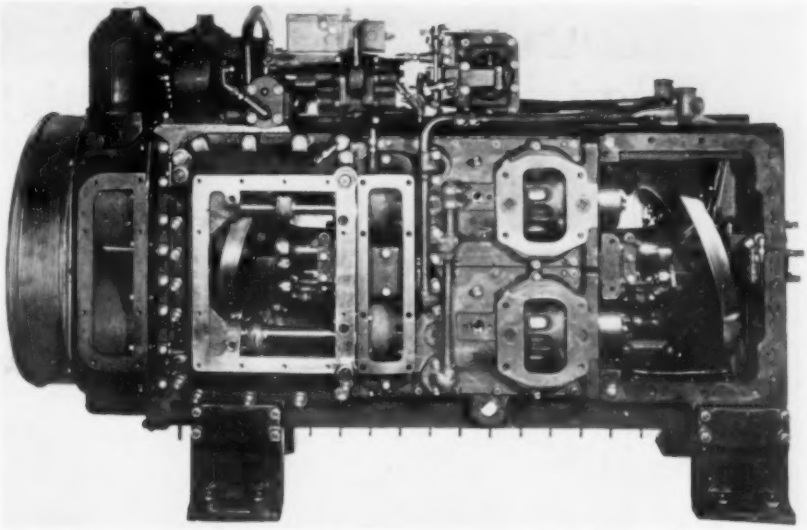
Crankless Diesel Engine in Production, Many Advantages

The Sterling crankless diesel engine, the first of which has run over 9,000 miles in the yacht "Silverheels," since early in 1936, is now in production. The manufacturer, the Sterling Engine Co., 1274 Niagara Street, Buffalo, N. Y., claims that there are no limitations to the possibilities of this engine for any purpose for which an engine can be used—from the standpoint of aviation work, medium-weight streamline trains, submarines, and for heavy-duty work. This diesel engine is a horizontal unit employing four cylinders with eight pistons working parallel to the main shaft. The power is delivered from the pistons through a Michell or Kingsbury thrust bearing to an inclined power disc, which is rigidly fixed at an angle to a straight shaft. This straight shaft is much stronger than a bent or crankshaft as used in conventional vertical engines. Cylinder heads, cylinder head gaskets, valves, camshafts, springs, rocker arms and tappets have been eliminated.

The center of gravity of this engine is lower than that of other types of engines of similar horsepower and speed. The pistons and connecting rods move horizontally. There is no angular motion to the connecting rod, which reciprocates in a straight line without any side pull on the piston; thus, permitting the pistons to center in the cylinders and their action does not disturb the piston rings.

The engine works on the 2-cycle principle but in the Sterling diesel the pistons perform the function of valves uncovering the air-intake and scavenging the cylinder and also the exhaust ports in timed sequence, and not simultaneously as in a conventional 2-cycle engine. These Sterling engines provide a power stroke with each outward motion of the pistons. Since the pistons control the port openings, the benefit of the 4-cycle valve action is achieved without the use of poppet valves or springs or camshafts. Access to the interior of the engine is provided by four hand-hole plates, two on each side of the engine. The removal of these plates exposes the interior of the engine, and once the plates are off, the slipper bearings may be removed in two minutes each. All eight pistons can be removed from the engine in approximately two hours.

The forward end of the engine incorporates a 4-cylinder air compressor, single-acting, and distributing the air by a rotary valve to the cylinders as the pistons uncover the intake ports, completely scavenging the cylinder and supercharging it with air at about five pounds pressure in controlled, rotational turbulence. The rotary valve does not touch nor seat like a poppet valve, but simply turns with the main shaft. The lubricating system provides for cooling and filtering all the lubricating oil before delivery to the pressure system. The inclined power discs are lubricated by the spray of four nozzles which project the oil against the face of the disc before it rotates through the slipper bearing. These slipper bearings which transfer the power are identical with the thrust bearings used in hydraulic machinery and turbines, and they are universal on most ocean liners and warships, taking the thrust of the propellers.



A STERLING CRANKLESS DIESEL ENGINE PARTLY ASSEMBLED WITH THE MAIN SHAFT, INCLINED POWER DISCS, PISTONS AND POWER DISC BEARINGS IN PLACE

Electric starting of the new Sterling diesel is accomplished by a 32-volt starter with double throw switch. The first position of the starter switch employs 12 volts to engage the Bendix gear. The second position allows the full 32 volts to rotate the engine, and starting is rapid, since there is no cold surface such as the inner side of a cylinder head to interfer with the building-up of the heat necessary to provide good combustion.

Into the after end of the engine there is built a large reduction gear, the driven pinion being set in ball bearings. Several ratios are available. The engine speed may be transposed from 1,200 rpm to 1,000 or 800 or 600 or 520 rpm with various stock ratios. A Sterling-built multiple disc clutch is built into the after-end of the engine, substantially oversize and well-lubricated.

The current model of the Sterling diesel is a 4¼-inch bore, 5.45-inch stroke engine with a rating of 135 hp at 1,200 rpm, and with an overload capacity and a marine rating of up to 150 hp. There is now under construction a 6½-inch bore, 8½-inch stroke engine with identical characteristics and an intended rating of 350 hp at 900 rpm. The stationary engine weighs 26 pounds per hp. A close regulated governor is provided to assure constant speed on various load changes, characterized by generating electricity where constant speed under low fluctuation must be maintained.

New Vice-President of American Meter Co.

Norton McKean was elected Vice-President of the American Meter Co., 105 West 40th Street, New York, at a recent Board meeting. Mr. McKean first became associated with the American Meter Co. in 1919 as superintendent of its Boston plant, after which he was made General Superintendent of the corporation and Manager of its Albany, N. Y., plant, the D. McDonald & Co. Works.

New Sales Manager of F-M Diesel Division

Fairbanks, Morse & Co., Chicago, Ill., has announced the appointment of T. M. Robie as Manager of the Diesel Sales Division. Mr. Robie has been associated with Fairbanks-Morse since he returned from World War overseas service in 1919 and has served in numerous capacities in the manufacturing and sales division. Since 1932 he has been in charge of diesel sales to resale manufacturers. Previously he was associated with the New York branch office for one year and the Dallas office for two years, and was employed at the factory on diesel engine designing, testing and building for nine years.

Water-Works Catalog on Brass Goods

The Farnan Brass Works Co., 1104 Center Street, N. W., Cleveland, Ohio, has just issued a new 95-page illustrated catalog completely listing its line of water-works supplies, brass stops and brass fixtures. This catalog, W-136, may be secured by readers of THE AMERICAN CITY by writing direct to Farnan and mentioning this magazine.

Of unusual interest are the pages depicting the original plant founded in 1852 and the present plant, as well as a reproduction of the original certificate of membership of the Farnan Brass Works in the American Water Works Association, dated April 28, 1892, making this company one of the oldest members of this national association.

4th Avenue, downtown Seattle. Old surface removed and base resurfaced in 1937.

SEATTLE OFFERS FRESH PROOF OF THE LOW SURFACE MAINTENANCE COST OF CONCRETE STREETS

JUST *how saving* in surface maintenance is concrete? Seattle provides the answer with a report on costs for the 13-year period from 1924 to 1936 inclusive.

High Type Pavement	Average Yardage for Period 1924-1936 inclusive	Average Annual Surface Maintenance Cost Per 1000 Sq. Yd.
A	1,500,000	$5.95
B	3,000,000	$7.48
Concrete	6,800,000	$1.13

Concrete cost this city approximately *one-fifth* as much per square yard for surface maintenance as pavement "A"... approximately *one-seventh* as much as pavement "B". Both "A" and "B" are high-type pavements of equivalent first cost, but *concrete carried a far greater volume of traffic;* most arterial streets and much of the downtown business district are concrete paved.

Does Seattle like concrete's economy? Well, as of Dec. 31, 1936, 530 out of 816 miles of paved streets were concrete! And this mileage is being steadily extended.

PORTLAND CEMENT ASSOCIATION
Dept. A1-4, 33 West Grand Avenue, Chicago, Ill.

A National Organization to Improve and Extend the Uses of Concrete

The More Concrete the Less Street Maintenance

INSTALLATION OF MUNICIPAL STREET SIGNS IN KALAMAZOO, MICH.

Street Name Signs for Progressive Cities

In the neighborhood of 400 cities and towns are now identifying their streets by means of porcelain-enamel plates held and protected in malleable-iron frames, as manufactured by the Municipal Street Sign Corporation, 233 Meeker Avenue, Brooklyn, N. Y. Cities that have used these signs for some 15 years include Atlanta; Louisville; Akron; Harrisburg, Pittsburgh and Philadelphia, Pa.; Newark, Paterson, and Trenton, N. J.; New York, Rochester, Syracuse and Yonkers, N. Y.; Raleigh, N. C.; Providence, R. I.; Houston, Texas; Richmond and Roanoke, Va. Kalamazoo, Mich., has recently installed these signs throughout the city. The letters are 4 inches high where the name will permit, and 3 inches in the case of long street names. The virtues of these signs are visibility and permanence of legibility, and consequent economy in the long run. Material and workmanship are guaranteed for one year, and the sign plates are guaranteed for ten years not to fade, tarnish, chip or peel. No relettering of signs is required, and the maintenance kit consists of soap and water.

Littleford Takes Over Wheeled Roller

The Wheeled Roller originated and developed by the Wheeled Roller Corporation, San Antonio, Texas, will be manufactured and sold in the future exclusively by Littleford Bros., 500 East Pearl Street, Cincinnati, Ohio. Since the introduction of the Motorized Wheeled Roller, the demand for these units has grown until there is a definite need for a geographical central point of manufacture to facilitate deliveries. The incorporation of nationally distributed parts in its manufacture is another necessity. A nation-wide sales and service arrangement has become imperative to the proper handling of the business. All these requisites are obtained in the Littleford set-up. The addition of this maintenance roller unit augments the Littleford line of road-maintenance equipment. The unit will continue to be known as the Wheeled Roller, but important improvements in the mechanical design are being engineered by Littleford Bros. and have been brought out in the new models placed on the market this month.

They are also being displayed at the Road Show in Cleveland, January 17-21.

International Builds Larger Tractor Works

A $1,000,000 addition to the tractor works of the International Harvester Co., at 2600 West 31st Boulevard, Chicago, Ill., is now under way. This enlarged plant will be devoted entirely to the production of the International line of TracTracTor crawler-type tractors as distinguished from wheel-type tractors. Five different size models will be produced in the enlarged plant, including two models powered by diesel motors. The diesel engines will continue to be made at the company's plant at Milwaukee.

TracTracTor machining and assembling operations will be conducted in the new space with the assembly line lengthened to 500 feet and its present output of 40 crawler tractors per day increased to 75. Railroad tracks will adjoin the north end of the new structure, and an electric crane having a 58-foot span will operate over the entire loading area.

Small Portable Concrete Mixer

Koehring Dandie side or end discharge concrete mixers, with four-wheel or two-wheel-trailer mountings, with multiple V-belt drive, the well-known Koehring re-mixing drum, full-floating spring mounting, and automatic skip-blow shaker and automatic water tank, are described in a series of bulletins which readers of THE AMERICAN CITY may secure gratis by writing direct to the Koehring Co., 3026 West Concordia Avenue, Milwaukee, Wis. Dandie mixers are made in 7-S, 10-S and 14-S sizes.

Anchor Co. to Build 76-Mile Wire Fence

The Anchor Post Fence Co., Baltimore, Md., has recently received the largest chain-link fence contract that has ever been let. The Metropolitan Water District of Southern California has awarded a contract covering 76 miles of 6-foot high chain-link fence to be erected around the open sections of the Colorado River aqueduct, which carries water from Parker Dam to Los Angeles. The fence will be manufactured in the Baltimore and Los Angeles plants of the company.

Steel Bridge Deck Tested for Skidding

A reduction in skidding accidents on slippery bridge surfaces is possible through the use of steel decking of the open mesh type. This was indicated by a series of tests recently conducted on two bridges at Toledo, Ohio, under the direction of John Edy, City Manager.

The surfaces of both bridges were thoroughly wet previous to the tests, which consisted of a demonstration of the ability of automobiles to make quick stops without skidding on the Cherry Street bridge, which has an open steel deck, and on the St. Clair Street bridge, which has a deck of another type. The cars were driven by racing drivers who had had wide experience in test driving.

On the Cherry Street bridge, the lead car made a series of quick stops, and the car following it was able to avoid accidents. The decking provided a sure non-skid grip for the tires. On the St. Clair Street bridge, a reproduction of the same traffic situation resulted in a series of crashes, with both cars skidding on the slippery surface of the bridge.

To prove that the new decking holds no hazard for horse traffic and will not catch the calks of horseshoes, a horse which had never been on this type of decking showed no hesitancy in crossing.

The bridge decking supplied for the Cherry Street bridge by Blaw-Knox Co., Pittsburgh, Pa., consists of a mesh-work of riveted steel bars laid on edge. The openings between the bars of this Blaw-Knox Irving decking are so designed that they give a maximum of non-skid surface for motor traffic and provide a satisfactory footing for pedestrians and animals. Snow and ice do not stay on the surface of the new type of decking, which further increases the safety factor in winter weather. The lightness of the material has made it possible to increase the traffic load and to decrease the dead weight of many bridge structures.

QUICK STOPS WITHOUT CRASHES ON THE WET OPEN-MESH STEEL DECK OF THE CHERRY STREET BRIDGE DURING SAFETY TESTS IN TOLEDO, OHIO

These patrol cars, equipped with G-E two-way radio, help Evanston, Ill., maintain its leadership in safety

SAFER CITIES

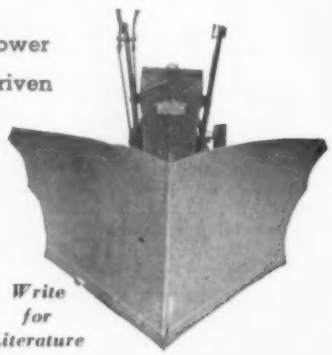
. . . PROTECTED BY G-E POLICE RADIO

THERE *should* be no compromise with quality in the selection of police radio. The protection of lives and property depends, to a large extent, on the performance of your radio equipment. It *should* be reliable — designed and manufactured by an experienced company to meet the rigorous requirements of 24-hour service.

General Electric — a leader for many years in radio communication — manufactures a complete line of transmitters and receivers. Medium-high frequency and ultra-high-frequency types for both one-way and two-way communication are included. For further information, write Radio Department, General Electric Company, Schenectady, New York.

GENERAL ELECTRIC 900-5

Power Driven



Write for Literature

GRAVELY SIDEWALK SNOW PLOW

A SMALL SIDEWALK, POWER-DRIVEN SNOW PLOW THAT WILL GO IN THE PLACES YOU WOULDN'T THINK OF TAKING THE BIG TYPE MACHINES.

It will effectively clean a path from 40 to 54 inches. You can easily adjust both as to width and manner of throwing the snow.

This same tractor can be used in the summer months for all types of mowing. The GRAVELY has long been famous, due to its versatility.

It is:

- A power-driven, sickle type mower
- A rotary type power lawn mower
- A sidewalk snow plow

All Attachments Are Used with the Same Tractor or Power Unit

GRAVELY MOTOR PLOW AND CULTIVATOR COMPANY
DUNBAR, WEST VIRGINIA

Completely assembled machines or the Smith Compressor Head and Accessories with instructions for mounting.

Address Inquiries to Desk K

Gordon Smith & Co., Inc.
Bowling Green, Ky.

Serving Modern Industry
THE SMITH AIR COMPRESSOR
made from FORD PARTS

Used everywhere to operate medium and lightweight rock drills, paving breakers, clay spades, tampers and practically all pneumatic tools. Replaces cumbersome, inefficient portable compressors on a large percentage of work. Over 60 cubic feet a minute capacity. Pressure up to 175 lbs. a square inch. Head equipped with high speed compressor valves; automatic unloading and idling. Uses only one gallon of gasoline per hour. Parts available everywhere.

PROPER HOUSE NUMBERING

There is a right and a wrong way to plan house numbering in a city. Send for special report compiled by authorities on this subject. No charge, of course.

Premax Products

Photograph by Bachrach

W. J. CARROLL, PRESIDENT, ROCKWOOD SPRINKLER CO.

Carroll of Rockwood a Gamewell Director

W. J. Carroll, President of Rockwood Sprinkler Co., Worcester, Mass., has been elected to the Board of Directors of the Gamewell Co., Upper Falls, Newton, Mass. Mr. Carroll was connected with Gamewell for about 14 years before joining the Rockwood Company, first as Publicity Manager, then sales representative of the New England office of Gamewell, and later, General Sales Manager. After this he became President of Rockwood Sprinkler Co.

New Bulletins on Centrifugal Pumps

The Dean Hill Pump Co., Anderson, Ind., has issued several bulletins on its various types of centrifugal pumps for municipal service, which we are pleased to list for the benefit of our readers. Any of these bulletins may be secured by readers of THE AMERICAN CITY by writing direct to Dean Hill Pump Co. and mentioning this magazine.

Bulletin No. 313 describes Dean-Hill double-suction, single-stage centrifugal pumps from 2- to 30-inch sizes. The 8-page bulletin is well-illustrated and contains detailed specifications. A front-page illustration shows three Dean Hill units in a municipal pumping station.

Bulletin 316 is a 4-page folder, illustrating and describing Dean Hill double-suction ball-bearing centrifugal pumps in sizes up to 3 inches. These small-sized, high-speed, single-stage pumps are used in pumping water, oil and other light liquids.

Bulletin No. 602 describes the line of multi-stage centrifugal pumps, and features the Dean Hill turbine-driven boiler feed pump.

Bulletin 352, Sec. A, is devoted to independent, single-suction, centrifugal pumps of the ball-bearing type with direct motor drive.

Bulletin No. 301 illustrates and describes single-suction, vertical centrifugal pumps with enclosed or open impellers.

Bulletin No. 1401 is devoted to centrifugal sump pumps.

Bulletin No. 1502 lists reciprocating deep-well pump heads and contains a complete set of dimensions for installations.

Bulletin No. 356, Sec. A, 2nd edition, describes Dean Hill type D steam turbines for mechanical drive.

Rosch Joins Pardee as Test Engineer

The Pardee Engineering Co., Long Island City, N. Y., has announced the appointment of Melville Wendel Rosch as test and development engineer in its Long Island City plant. Mr. Rosch was formerly with the engineering department of the General Chemical Co., of Wilmington, Del. He will be in charge of Pardee plant testing and the development work on new equipment, with particular reference to automatic chlorinators and chlorinators for small water supplies.

ONE OF THE CARTOONS FROM THE FORD METER BOX CO. BOOKLET

Making Money from Running Water

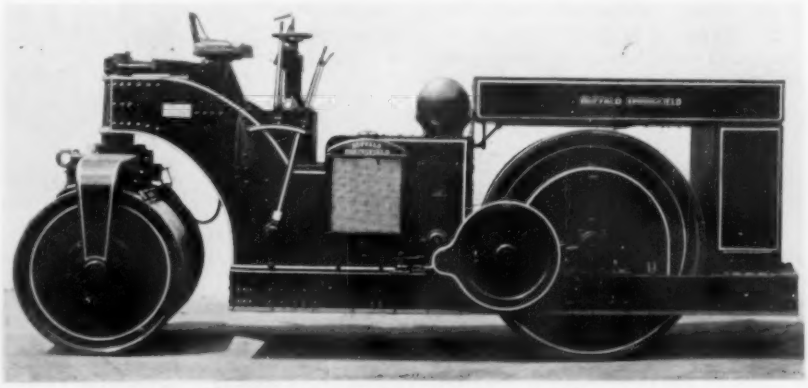
The Ford Meter Box Co., Wabash, Ind., has just released a most interesting "horsey" folder bearing the title, "Don't Let Running Water Run Away from You." This folder contains a number of humorous cartoons depicting the uses of Ford meter yokes and measuring devices for testing meters, as well as meter boxes and meter-box covers.

The Ford Meter Box Co. has again placed itself on record as genuinely interested in the water-works industry as a whole. It has prepared envelope stuffers 3¼ x 6 inches, printed on one side, on good grade buff paper, which it is supplying to any municipal water departments or to water companies at its own cost of $1.50 per thousand postpaid. These folders show the famous horse "Running Water" in multiple and bear the following imprint: "What would we do without running water? The answer is simple: We just wouldn't do. Without running water we could no more have urban life as we know it than you could live without circulating blood in your body. So give a thought to the importance of this vital service and to the ceaseless responsibility of the organization and personnel which provides it. Don't let familiarity dull your appreciation of RUNNING WATER."

High Compression Tandem Roller

The Buffalo-Springfield Roller Co., Springfield, Ohio, has announced an addition to its line of twelve models of road rollers. This addition is a large tandem roller weighing 16 tons unballasted, and 22 tons when the rolls and ballast tanks are filled with water. This 16-ton tandem delivers a maximum linear-inch compression of approximately 530 pounds, a compression which heretofore could be obtained only by a very heavy three-wheel roller with narrow rolls. Buffalo-Springfield feels that this new roller will meet a definite need in certain sections of this country where very high compression is specified on the finishing of asphalt pavement.

Another improvement in the Buffalo-Springfield line is a towing attachment which can be applied to the 3-3½-ton tandem for rapid transportation. The attachment consists of an adjustable tongue and two pneumatic-tired wheels which can be put on or taken off in only a few minutes by one man. The 3-ton model has been a popular one for some time for driveway and patch rolling, and its value is further enhanced by this simple and sturdy towing attachment.



THE NEW 16-22-TON BUFFALO-SPRINGFIELD TANDEM ROLLER

★ BEST BY TEST ★
IN 25 CITIES FROM COAST TO COAST

BEST by TEST
...DUAL AUTOMATIC PARKING METERS

Yes, here is conclusive proof that Dual Automatic Parking Meters are "best by test"! Recently, the City Council of St. Paul, Minnesota, submitted ten different makes of parking meters to a committee of engineers to make exhaustive tests to determine their mechanical rating. The examination included *exterior design, materials, indicator, coin slot* and *mechanism, coin receptacle, clock mechanism, convenience of operation, coin and slug test, heat and cold test operation, water test and examination after tests. The result — Dual Parking Meters proved superior.*

TOPEKA
now using parking meters!

Topeka, Kansas, merchants petitioned the city council to reinstall parking meters . . . Dual automatics again won the award and are now in operation. Your city will also find them best by test.

- *Lubbock, Texas, orders 300 additional meters!*
- *Long Beach, California, orders 500 additional meters!*
- *Bakersfield, California, orders 125 additional meters!*
- *Wilmington, Delaware, orders 187 additional meters!*
- *Providence, R. I., orders 1000 additional meters!*

Five other cities have made second and third additional installations. Dual Automatic Meters best by actual experience.

WRITE NOW FOR COMPLETE DETAILS AND INFORMATION

DUAL PARKING METER CO.
Commerce Exchange Building Oklahoma City, Oklahoma

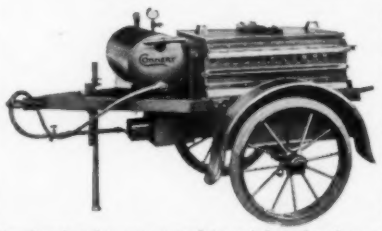
HEIL STREAMLINE DUMPERS

If you are seeking hydraulic dumping equipment that combines good appearance and dependable performance, you will want to know more about these Heil streamline Dumpers made for the City of Minneapolis—Complete details are yours for the asking—Address:

THE HEIL CO.
GENERAL OFFICES
3000 WEST MONTANA STREET
Milwaukee, Wis.

Factories: Milwaukee, Wisconsin; Hillside, New Jersey
Branches and Distributors Everywhere

CONNERY'S TAR & ASPHALT HEATING KETTLES



Style "J" 60-75-gallon oil burning kettle equipped with Timken Bearings, solid rubber-tired wheels and truck springs. A fine kettle for maintenance work and the price is low.

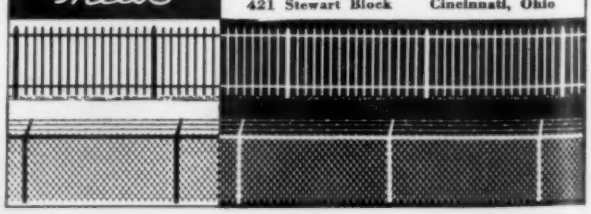
All sizes manufactured from 10 to 550 gallons.

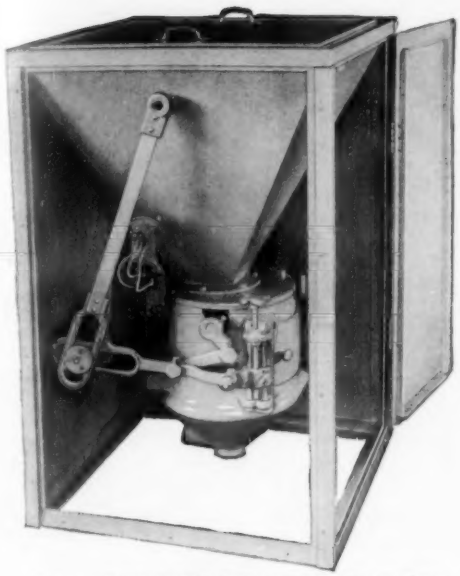
Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

CONNERY CONSTRUCTION COMPANY
4000 North Second St. Philadelphia, Pa.

FENCE for every PUBLIC PROPERTY need

Stewart FENCES
IRON AND CHAINLINK WIRE
New Catalog Sent Upon Request
THE STEWART IRON WORKS CO., INC.
421 Stewart Block Cincinnati, Ohio





THE NEW PERMUTIT DRY CHEMICAL FEEDER, SHOWING THE DRIVING MECHANISM

Chemical Dry Feeder Made Triple Dustproof

The new chemical dry feeder announced by The Permutit Co., 330 West 42nd Street, New York, is enclosed in a cabinet aimed to prevent the escape of dust into the room. Further, the feeding mechanism is enclosed in a machine cast iron housing, and a slide gate is provided to cut off the flow of chemicals from the hopper when desired. The swirling motion of the water in the dissolver further creates a draft which draws in all dust particles. This machine is of the oscillating feeder type, having a curved oscillating feed plate which fits snugly under the hopper spout and discharges a definite amount of chemical at the completion of each stroke. The length of stroke determines the rate of feed.

The chemicals are discharged on a whirling film of water which covers the entire bottom of the vortex dissolver. A simple means of regulating the feed rate is provided by a micrometer screw giving fine adjustment over a range of approximately 40 to 1.

A spider agitator within the hopper prevents the arching of such materials as lime, activated carbon, and soda ash. It consists of four rods with spider arms, one in each corner of the hopper. The hopper has a capacity of approximately 3½ cubic feet, but steel extensions can be provided which increase the capacity 4 cubic feet for each additional foot of height.

New Neon Flasher Battery-Operated

All over this country there are many unexpected traffic hazards which are known to local motorists but which remain as death-traps for the transient. Public demand for adequate protection of motorists from the almost invisible hazards of center piers on subways, bridge abutments, dead-end streets and sharp curves has brought into being various devices to be used as warning signals.

The Lewis Manufacturing Co., Decatur, Ill., has developed a new battery-operated neon flashing beacon signal. A neon bulb gives a ray which penetrates fog, mist, rain and snow. The bulb is operated on a 9-volt dry battery by means of a flasher control. It is claimed that with this flasher control one battery will operate the neon bulb on a frequency of 80 to 100 flashes per minute for 24 hours a day for a period of four to six months.

To protect the battery and flasher control from adverse weather conditions and also from injury, they are placed in a metal well 9 inches in diameter and 3 feet deep. This well is placed in the ground in the vicinity where the flasher signal is desired, and the neon bulb may or may not be connected directly with the metal well. It may be connected to a post, sign or other object.

The neon bulb is also mounted in a metal shell. Back of the bulb is a reflector which projects the light beams from the bulb through a 5⅝-inch red diffusing lense in front. A metal visor protects the lens and also gives greater visibility. The battery is easily and quickly changed when desired, and the battery cost is practically the only operation cost.

NEW NEON FLASHER SIGNAL

Morris Representative in Salt Lake City

Morris Machine Works, Baldwinsville, N. Y., has announced the appointment of the Lang Company as its representative in Salt Lake City, with offices at 267 West First South Street. The Lang Company will handle the sales of Morris centrifugal pumps and hydraulic dredges in that locality.

Special Markers for Center Line and Edges

Specially designed roadway markers made by the Chicago Manufacturing & Distributing Co., Chicago, Ill., are being installed along practically the entire length of Interborough Parkway in the borough of Queens, N. Y., by the Long Island Park Commission. Spaced at regular intervals along the center line of the parkway, these Ross metal markers will clearly define the dividing line between traffic moving in opposite directions during both day and night.

Equipped with glass reflector buttons, the markers appear luminous at night under the reflection of automobile headlights and serve to restrain motorists from crowding the center line or encroaching on the lane of approaching traffic from an opposite direction. In addition to the roadway markers, curb markers with red reflector buttons are being installed at access drives to enable motorists to pick up the edge of pavement in bad weather and keep from running off the pavement. The New York City Park Department will install similar markers on the Grand Central Parkway in the same borough.

Bushnell Now with Worthington-Gamon

Charles A. Bushnell is now representing the Worthington-Gamon Meter Co., of Harrison, N. J., and is working in the New Jersey, Maryland, Delaware and eastern Pennsylvania territory. For the past three years Mr. Bushnell has been with the Hydraulic Development Corp.

TRAFFIC MARKERS USED ON NEW YORK CITY PARKWAYS

The one shown is the Z type used for the center line; the C2-R type is used on the curbing

MUD-JACK METHOD

Sunken concrete slab is raised to correct grade by the Mud-Jack Method — preventing breakage of the slab and eliminating reconstruction costs.

Increase the life of concrete slab by the Mud-Jack Method. Write for information about economical maintenance of curb, gutter, and sidewalk slab.

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Now! WE FLY..

The ox-cart or the horse and buggy do not meet the transportation demands of today. Now! we fly. . . .

. . . But no airplane of modern dimensions could be economically justified if it was not for the many advantages of the new, light-weight, high-strength metal alloys. These alloys have been designed especially for the job of reducing bulk and increasing strength – thus increasing possible payload. Conventional materials, those that we have known for years, have been relegated to the shelf and in their places we have accepted the newer, stronger, lighter, less bulky materials provided by modern scientific research.

It is to this latter group that Simplex-LATOX rubber insulation belongs. It is designed to provide small diameter, light-weight, moisture-proof cable for supervisory control of utility sub-stations, police and fire alarm, telephone and signal service and electric or steam railroad control or signal systems. It is the ideal insulation for communication, signal and control cables. For all such applications it combines the advantages of rubber and paper insulations yet exceeds but little the small diameter and light weight of dry paper insulated cables heretofore used.

Simplex-LATOX rubber insulation is waterproof, permanent and retains indefinitely the qualities of high-grade rubber insulation. It is made directly from prevulcanized rubber latex and is deposited on the conductor in a series of films to form a thin homogeneous wall of high-grade rubber insulation **containing not less than 93% rubber** and having uniform physical and electrical characteristics.

It was perfected in Simplex Laboratories to meet a definite need caused by modern day conditions. It was designed especially for the job of reducing bulk and increasing those physical and electrical properties necessary for efficient insulation – thus increasing possible payload or reducing capital investment.

May we send a booklet "LATOX Lead Covered Cables" giving complete information, including illustrations, comparisons, tests and specifications?

Simplex Wire & Cable Co., 79 Sidney St., Cambridge, Mass.

Simplex – LATOX

Thin insulation made directly from rubber latex

A.C. 1-38

THE NEW WESTERN ELECTRIC 22A POLICE RADIO TRANSMITTER AND THE "SALT SHAKER" MICROPHONE

New Radio Transmitter of Advanced Design

An ultra high frequency police radio transmitter of advanced design for use in the band between 30 and 42 megacycles has been introduced by the Western Electric Co., 195 Broadway, New York. The power output is a full 25 watts, unmodulated, and 38 watts during modulation. This transmitter, designed by Bell Telephone Laboratories, is the first to appear incorporating the new signal boosting amplifier circuit, which permits operation at an unusually high percentage of modulation without risk of exceeding the predetermined maximum on peaks.

The audio frequency amplifier consists of four stages, with a total gain of approximately 100 db and an audio output conservatively rated at 25 watts. The automatic gain device incorporated in this amplifier maintains the modulation at a high percentage almost independent of the speech level introduced at the microphone. Since radio coverage depends upon the average percentage of modulation, this device insures a maximum of efficiency and produces consistent communication with the cars cruising at a distance where only momentary peaks emitted by the ordinary transmitter of this same power rating could be heard.

Sufficient audio amplification is provided in this type-22 transmitter to permit the use of a high-fidelity dynamic microphone, with the result that the voice of a police radio dispatcher reaches the patrol cars with broadcast station clarity. The high-quality voice transmission thus accomplished is valuable, not merely for its pleasing effect, but for its intelligibility.

This transmitter is arranged for simplex operation on a single carrier frequency in common with the transmitters used in the police cars, or for duplex operation involving one frequency for the headquarters transmitter and another frequency for the radio car transmitters. The voice frequency range of the new unit is 100 to 10,000 cycles within plus or minus 2 db, and the harmonic distortion is confined to less than eight per cent rms audio harmonics.

A quartz plate is used for control, having a frequency stability of better than 0.025 per cent of assigned frequency throughout a temperature range from minus 20 to plus 60 degrees Centigrade.

The design is such that all control and audio circuits may be extended a reasonable distance for remote control. The special input circuits of this transmitter will accommodate a variety of types of microphones, such as the popular "salt shaker" dynamic, the double-button carbon and the single-button handset. Direct current power supply for carbon microphones is an incorporated feature of the transmitter, and provision is also made for connection to a remote speech input telephone line. The radio frequency output circuit may be connected directly to a 70-ohm, 7/8-inch diameter concentric transmission line for efficient feed to the antenna.

The operator in charge of this equipment knows whenever the power is on, for a red light pilot on the face of the unit indicates that it is ready for operation. By means of a conveniently located key, he may transmit a warning tone to attract attention at the receivers and indicate that a message is about to follow. The set employs the latest type of audio frequency and radio frequency beam power tubes, and the carrier noise is 50 db down. The high ratio of output power to input power achieved through improved design accomplishes new operating economies, and the safety of operating personnel is insured by an electrically dead exterior and an interior that automatically becomes dead upon removal of the cover.

Moves General Offices

Economy Pumps, Inc., formerly the Economy Pumping Machinery Co., Hamilton, Ohio, has announced the removal of its general offices to 2522 West Congress Street, Chicago, Ill. The factory and engineering department, with enlarged and improved production facilities, will still be located at Hamilton.

Kwast, Chief Engineer Kimball-Krogh Pumps

Felix Kwast, connected with the engineering department of the Kimball-Krogh Pump Division of Victor Equipment Co., Los Angeles, Calif., for the past year, has been appointed Chief Engineer, with headquarters at the Los Angeles plant and hydraulic laboratory. Graduated in hydraulic engineering at the University of Darmstadt, Germany, he came to this country over a quarter of a century ago. His first two years were spent as pump designer for the Dow Pump and Engine Co., San Francisco; he then spent a year, in the same capacity, with the Yuba Construction Co., Marysville, Calif. Thereafter for 18 years he was hydraulic engineer for the Byron-Jackson Co. at Berkeley. Three years ago he became Chief Engineer of the Sterling Pump Co., of Stockton.

Portable Automatic Asphalt Patch Plant

The type R-400 automatic portable patch plant made by Hetherington & Berner, Inc., Indianapolis, Ind., incorporates a number of features which are of particular interest to city highway departments. The plant has ample capacity for patch and maintenance jobs and even for some paving jobs, for it will handle 400 yards per day. Cold material fed into the feed hopper is not touched again until it is discharged as finished material from the mixer end of the plant.

The plant has one hot and one cold elevator, and the dryer drum is heated internally by fuel oil through a combustion chamber. The asphalt kettle, mounted on top of the machine, has its own fuel oil burner for heating. The fuel oil tank for all the burners is mounted at the rear and near the top of the plant. The aggregate bin has a capacity of 5,000 pounds, the hot-material bin, which has partitions, has a capacity of 3,100 pounds, and the lime dust bin a capacity of 1,600 pounds.

The asphalt flows by gravity from the asphalt kettle to the weigh bucket, which is suspended from a beam scale, and the aggregate weigh box is suspended from a cabinet beam scale. A rugged double-shaft pug-mill type mixer at the bottom of the plant gives thorough mixing before discharge of the material onto the roadway or into wheelbarrows. The plant is driven by a gasoline engine or electric motor, and the total shipping weight is approximately 16,000 pounds. The unit is a straightline plant mounted on a rigid steel trailer frame with rubber-tired wheels and conforming to highway and street regulations. It has a short turning radius. It will mix black base or binder as well as patching material, and can also be used for cold mix. It is also made in stationary type mounted on rigid steel supports.

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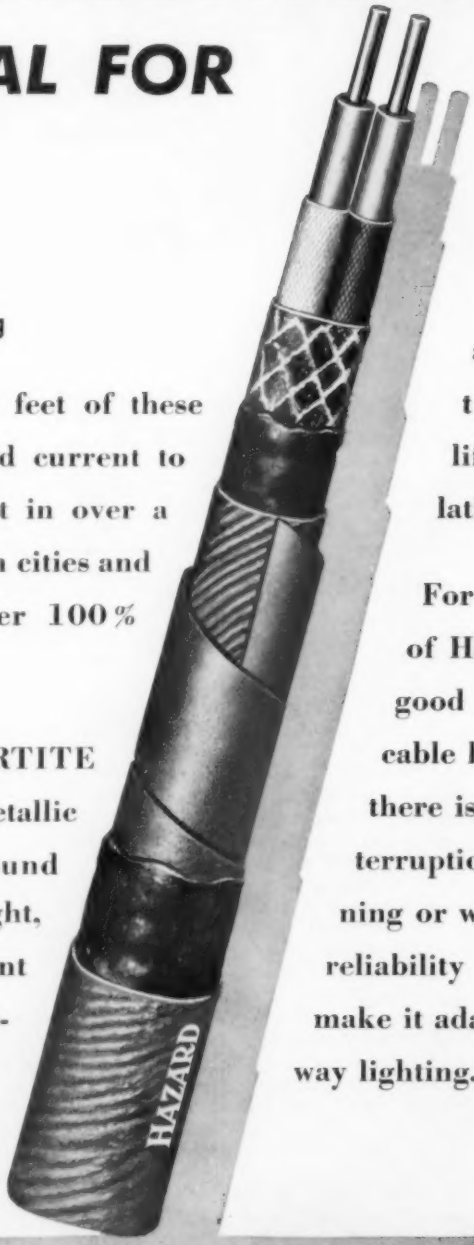
NON-METALLIC ARMORED CABLES ARE IDEAL FOR

street,
bridge,
highway
and airport lighting

Many millions of feet of these Hazard Cables feed current to lighting equipment in over a thousand American cities and continue to render 100% service.

HAZARD ARMORTITE CABLE is a non-metallic armored underground cable, light in weight, low in cost, efficient in service. Its "Submarine" rubber insulation is a high development of the art of cable making; it has an exceedingly flat curve of deterioration and may be expected to last throughout the life of the lighting installation.



For highway lighting, the use of Hazard Armortite Cable is good engineering practice. The cable being safely underground, there is no danger of current interruption from accident, lightning or winter storms. Its low cost, reliability and ease of installation make it adaptable to inter-city highway lighting.

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AN AUSTIN-WESTERN NO. 99 AT WORK ON A ROAD-BUILDING JOB IN LOS ANGELES COUNTY, CALIF.

New Model Motor Grader in Construction Class

The new model motor grader of the Austin-Western Road Machinery Co., Aurora, Ill., to be formally displayed for the first time at the Cleveland Road Show, has numerous features which take it out of the "maintainer class" and place it distinctly in the "construction class." The turning radius has been shortened and the maneuverability and traction of the machine increased, without increasing the existing standards of weight or power.

The outstanding features of the machine are that power is applied to all wheels, and steering through the front and rear wheels whereby traction can be controlled to increase blade output. The conventional idling front wheels are not used, but in their place are power-driven front wheels which are the same diameter as the rear drivers. The machine is equipped with but four wheels, but each of them drives and steers. Either single or dual tires may be used. Every adjustment in the operation of the machine is controlled hydraulically, including front and rear steering, extending or retracting the working blade without disturbing the position of the circle or "floor plane" of the road, raising the blade and scarifier, and any other required adjustment.

This New Model 99 is furnished with either gas or diesel motors and optional tire equipment. The standard moldboard is 13 feet long. The extra traction and steerability of this machine, according to Austin-Western, enables it to handle a blade of this length on the severest work. The scarifier folds up out of the way to avoid the windrow or load carried by the blade. The machine can be fitted with special attachments such as a bulldozer, backsloper, snow-plow, and wings.

Death of Major Walker

Major Lee E. Walker, long associated with Good Roads Machinery Corporation, Kennett Square, Pa., died on December 18.

Automatic Fire Extinction

"Modern Magic in Fire Protection" is an industrial motion picture produced by the Rockwood Sprinkler Co., Worcester, Mass., to show how fires are detected and controlled by the Rockwood Dualguard. The film shows not only the functioning of automatic sprinklers, but of rapid-acting heat-detecting units which close fire-doors, as well. This 29-minute, 3-reel educational picture is available to you through the company.

Dudley M. Diggs Now Member of A.S.S.E.

Dudley M. Diggs, Special Representative of the General Electric Illuminating Laboratory at Schenectady, was recently made a Junior Member of the American Society of Safety Engineers, the engineering section of the National Safety Council. Mr. Diggs is prominently identified with the nation-wide movement to improve visibility conditions at night along arterial streets and highways that have abnormal night accident rates. Proper and adequate lighting of such streets and highways is rapidly being recognized as a safety measure which can materially lessen the hazards of night driving.

New Vice-President of General Electric

Nathan R. Birge, Assistant to the President of the General Electric Co., Schenectady, N. Y., since 1927, has been elected a Vice-President of the company, and will carry on his duties in Schenectady. Mr. Birge entered the employ of G-E in 1900 following his attendance at Worcester Polytechnic Institute. In 1902 he was transferred to the former Supply Department of the company, later becoming manager of the Street Lighting Section. He was named Assistant Manager of the Supply Department in 1923, and in November of that year was transferred to the executive department. He was made Assistant to the President in July, 1927.

Chevrolet Cars for Frisco Police

The Police Department of San Francisco, Calif., has recently taken delivery of 40 new 1937 Chevrolets through Ernest Ingold, Inc., San Francisco automobile dealer. The accompanying illustration shows the cars lined up before the Ingold salesrooms. In the foreground are the men who completed this record sale: from left to right, George Olsen, Vice-President of Ernest Ingold, Inc.; T. A. Brooks, City Purchasing Agent; Ernest Ingold; William J. Quinn, Chief of Police; and Jesse Levy.

A PORTION OF THE FLEET OF CHEVROLET CARS RECENTLY DELIVERED TO THE SAN FRANCISCO POLICE DEPARTMENT

Dark Streets are DEATH TRAPS *at Night*

FIVE out of every seven persons killed in traffic accidents on city streets are pedestrians. *Sixty-five per cent of these pedestrian fatalities occur after dark.* It is *much* harder to see a person crossing the street at night, especially when the street is poorly lighted.

You, your family, and your friends are safe at home at night, but are you safe walking on poorly lighted streets? You may see the approaching car, but this doesn't mean that the driver sees you —especially if you are wearing dark clothing.

The high value of adequate lighting in saving lives and preventing property damage was proved in many cities in 1937. Isn't your city one where adequate lighting would prove a great benefit to all? *Now* is the time to modernize your street lighting, and General Electric lighting specialists will be glad to help you. Your main traffic arteries should be lighted first—they are TEN TIMES MORE DANGEROUS AT NIGHT THAN DURING THE DAY. General Electric, Schenectady, N. Y.

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500-262

Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

A Recent I. E. S. Resolution

Whereas the critical requirements of the motor-car driver for good visibility on street and highways led this Committee and other agencies to consider the subject of street and highway lighting largely from the motorist's point of view; and

Whereas statistics show that about 67 per cent of all traffic fatalities on city streets are those of pedestrians; and

Whereas the right of pedestrians to use streets deserves every consideration; be it therefore

Resolved that, in the opinion of the Illuminating Engineering Society Committee on Street and Highway Lighting, it is desirable that those who design or provide artificial illumination for streets give due weight to the requirements of pedestrians not only from the point of view of safety but also from the point of view of convenience and comfort in the use of public streets.

There Must Be Lighted Roadways

By ERNEST E. ANDERS
Utilities Commissioner, Jacksonville, Fla.

BAD judgment based on *inadequate information* from *inadequate lighting* is the largest single cause of the tragic toll of death and injuries on our streets and highways. Actual experience on lighted and unlighted roads places the responsibility for almost one-quarter of our total automobile deaths, injuries and property losses on unlighted highways.

What can we do about it? The follow-7-point platform has been proposed:

1. A progressive policy with respect to such needed highway construction improvements as widening or dividing main highways; easing and banking of curves; overpasses, underpasses, highway sidewalks where justified, guard-rails.
2. Uniform and attention-compelling traffic signals and roadway signs.
3. Safety lighting of night accident zones on heavily traveled and hazardous highways.
4. Vigilant patrols and enforcement of uniform laws for the motorist's protection.
5. Mechanically safe cars periodically inspected.
6. Continuous education of both new and experienced drivers, and of child and adult pedestrians.
7. Discouragement of the diversion of gasoline tax, using road funds exclusively for road purposes.

The first three planks of this platform deal with mechanical improvement of the highways; the remainder deal with man, his car, his habits, his laws, and his opinions. In view of the close relation between darkness and death, let us consider safety lighting.

On a properly illuminated road, a man or an object stands out in silhouette against the lighted road. Such an object is clearly revealed several hundred feet ahead. The driver can see quickly and with certainty in this critical second, and almost as easily as in the daytime. There is no guesswork or nervous straining to catch sight of an obstacle or a bend in the road. Approaching headlights give little or no annoyance, because contrast has been reduced from total darkness to that of a light background. On the lighted highway one can drive with dim lights or parking lights.

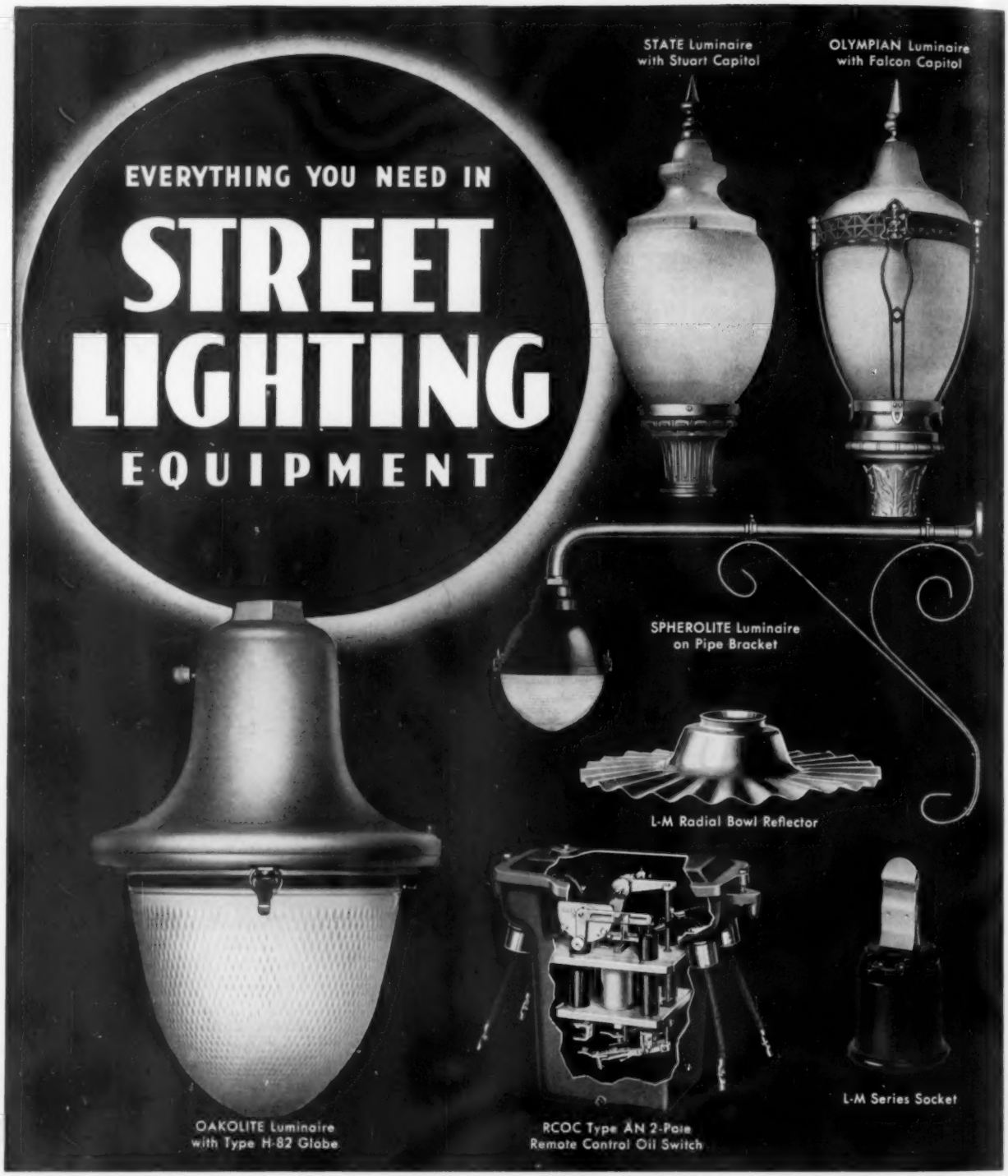
Special lighting units have been developed to meet all the needs of highway lighting. The new sodium-vapor safety lighting is a comfor. to the eyes. Its distinctive golden yellow light is produced with an efficiency more than twice that of the incandescent lamp, and its distribution makes it particularly effective for lighting wide, heavily traveled roadways.

A new incandescent high-visibility lighting unit is particularly effective on the narrower highways. Another incandescent lighting unit recently developed gives higher efficiency in the proper lighting of city business and residential districts. There will be few deaths on roads lighted by this equipment properly spaced and mounted at correct heights—over the roadway, for you seldom hit what you can easily see a quarter of a mile in front of you.

Where can this modern safety lighting be best applied? Surely on our night-accident highways. How much would it cost? To install it would add from 5 to 7 per cent to the cost of the average highway. To operate it, would cost on the average about 2 per cent of the original cost of the highway. The present high cost of going without the light is said to be three times the total cost of lighting.

If lighting happens to save the life of *your* mother, *your* wife, or *your* child, you could of course set no figure on its value. With 200,000 serious night accidents occurring on some 50,000 miles of main highways, and one-half or more preventable with safety lighting, is there any justification for the criticism that lighting costs too much?

During the last year you have read of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When you write for that catalog, kindly mention THE AMERICAN CITY.

several tragic air transport accidents. The toll in a year is about 100 deaths. These deaths fill our headlines. Yet during the same period, automobiles killed 38,000 persons—an average of more than 100 deaths *each day*.

We must make our choice. Shall we demand safety lighting for our most heavily traveled thoroughfares—or shall we continue to pay the bloody toll in thousands of accidents?

We hesitate to start any movement that appears to be costly and will add to the tax burden; but proper roadway lighting will save lives now needlessly sacrificed.

—From an address at the recent convention of the Florida League of Municipalities, St. Petersburg, Fla.

Bridge Near Houston, Texas

MORE than a year ago the Sims Bayou bridge, clearly visible in both the night and the day view on this page could not easily be seen at night. For example, at about that time, a newly-married couple and another couple with them, returning from a party, failed to see the approach, struck the side of the bridge, and the car turned over. This and other experiences resulted in the present mellow orange-yellow caution lighting by G-E sodium-vapor lamps.

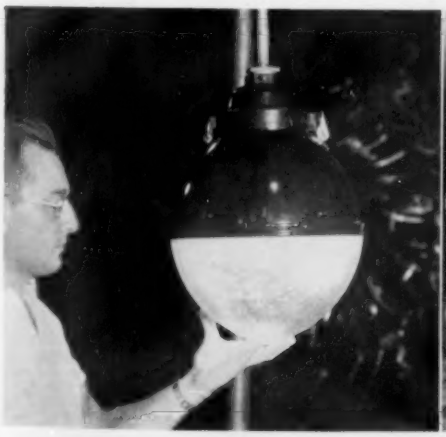
Good Lighting at Troy

PAULING AVENUE, Troy, N. Y., is now lighted by 300 Form 79R G. E. Novalux luminaires mounted 23 feet high and spaced 150 feet apart. The 6,000-lumen lamps are equipped with prismatic bowl refractors and spun-on reflectors. The old-type 6,000-lumen lamps were mounted 16 to 25 feet high and spaced an average of 400 feet.

DANGEROUS BRIDGE GETS SODIUM-VAPOR LIGHTS

TROY'S TRAFFIC THOROUGHFARES ARE NOW WELL LIGHTED

First-Class Street Lighting in a Town of 5,500



AS a result of Chamber of Commerce belief in the safety and good-business value of modern street lighting, a new system was installed along the main street of De Pere, Wis., which is U. S. 41.

A combination of reflector-refractor construction permits wide spacing of the luminaires with uniformity of illumination, and increases the amount of light delivered to the street, improves surface brightness and reduces glare. It is said that motorists and business men alike hail the result as one of the best-lighted business districts to be found in northern Wisconsin.

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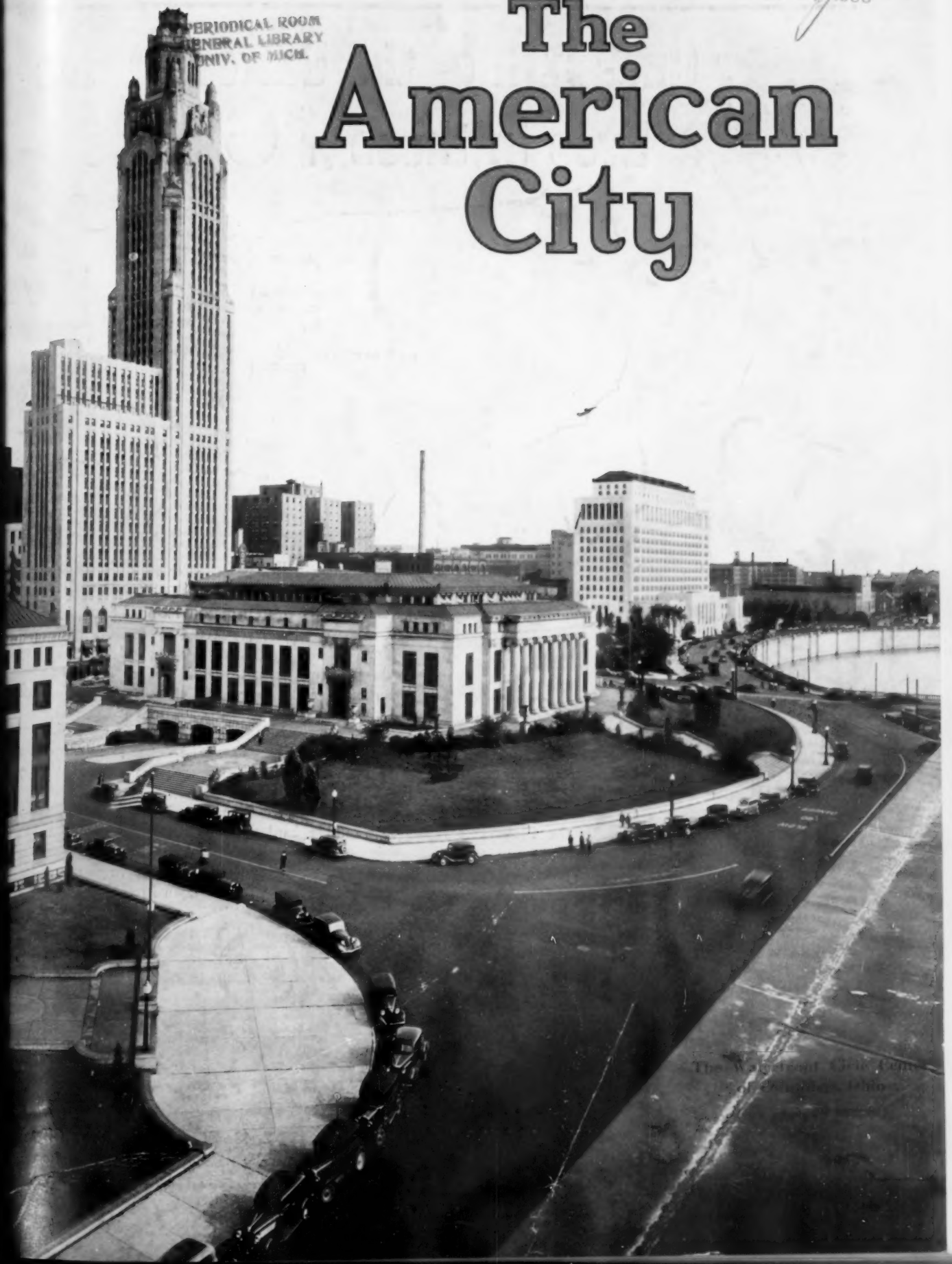
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